

CCP-310/314

*US Model
AEP Model
UK Model
J Model*



• CCP-310



• CCP-314

CASSETTE TO CASSETTE PRINTER

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK
⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE
PARTS LIST ARE CRITICAL TO SAFE OPERATION.
REPLACE THESE COMPONENTS WITH SONY PARTS
WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS
MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

【修理上の注意】

製品の安全性を確保するために「電気用品取締法」に従って
修理する必要があります。

安全・性能維持のため、必ず指定の部品を
ご使用下さい。

SONY®
SERVICE MANUAL
サービスガイド/補修部品表

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1. OPERATION			7. CCP-310 DIAGRAMS AND PARTS LIST		
1-1.	Specifications	3	7-1.	Block Diagram	41
1-2.	Features	4	7-2.	Frame Wiring	45
1-3.	External Views	5	7-3.	Audio Board (M)	47
1-4.	Function of Controls	6	7-4.	CPU (M), Mech-Motor (Capstan) Drive, Switch board	52
2. CIRCUIT DESCRIPTION			7-5.	Digital Connector Board	57
2-1.	Timing Chart	8	7-6.	Audio Board (S)	61
2-2.	Operation State	9	7-7.	CPU Board (S)	65
2-3.	Reel Motor Voltage Control (in REW mode)	19	7-8.	Volume, Meter Board	69
3. TROUBLE SHOOTING		20	7-9.	PS-5, 6, 7 Board	71
4. CHECK AND MAINTENANCE		23	7-10.	Parts List	73
Procedure of Head Replacement		23	8. CCP-314 DIAGRAMS AND PARTS LIST		
5. ADJUSTMENT			8-1.	Block Diagram (Refer to CCP-310 for motor)	89
5-1.	Caution	26	8-2.	Frame Wiring	93
5-2.	Test Tape	26	8-4.	Mech-Motor (Capstan) Drive Board and AC Inlet, Power SW (Same as CCP-310)	
5-3.	Mechanical Adjustment	27	8-5.	Digital Connector Board	95
5-4.	Electrical Adjustment	32	8-6.	Maintenance Board	97
6. SEMICONDUCTORS		38	8-7.	Audio Board (S) (Same as CCP-310)	
			8-8.	CPU Board (S) (Same as CCP-310)	
			8-9.	Motor Drive Board (Reel) (Same as CCP-310)	
			8-10.	Parts List	99

SECTION 1

OPERATION

1-1. SPECIFICATIONS

Power requirements	US model: 120 V ac, 60 Hz AEP model: 220 V ac, 50/60 Hz UK model: 240 V ac, 50 Hz	電源	AC 100V, 50/60Hz
Power consumption	US model: 0.62 A AEP model: 55 W UK model: 56 W	消費電力	53W
Recording system	4-track 4-channel	トラック方式	4トラック 4チャンネル
Tape cassette	Normal TYPE I cassette (TYPE II and TYPE IV tapes not usable)	使用カセット	TYPE I (ノーマル) カセット (CrO ₂ 、メタルカセットは使用不可)
Tape speed	38 cm/s (15 ips)	テープ速度	38cm/s
Copy time	Approx. 4 min. (with 60 min cassette)	コピー時間	約4分(60分用カセットにて)
Rewind time	Approx. 65 sec. (with 60 min cassette cassette)	巻き戻し時間	約65秒(60分用カセットにて)
Frequency response	50 Hz — 10 kHz	周波数特性	50Hz~10kHz
Recording bias frequency	Approx. 480 kHz	録音バイアス周波数	約480kHz
S/N	Better than 48 dB (NAB-A: WRMS)	総合S/N	48dB以上 (JIS-A最大録音レベル時)
Wow and flutter	Less than 0.25% (WRMS)	ワウフラッター	0.25% (WRMS)
Crosstalk	Better than 50 dB (between track 2 and 3, at 1 kHz)	クロストーク	50dB以上 (1kHz) (2~3チャンネル間)
Line/control output (CCP-310 and CCP-314)	13-pin DIN connector Line output output level 0 dBm (0 dBm = 0.775 V) load impedance more than 40 k Ω Control output	ラインコントロール出力端子 (CCP-310/314) (13ピンDINコネクター) ライン出力	基準出力レベル0.775V (0dBm) 負荷インピーダンス40k Ω 以上 動作コントロール出力
External input (CCP-310)		入力端子	CCP-310: 外部入力端子 (13ピンDINコネクター)
Line/control input (CCP-314)	13-pin DIN connector Line input input level 0 dBm input impedance 40 k Ω Control input		CCP-314: ライン/コントロール入力端子 (13ピンDINコネクター) ライン入力 基準入力レベル0.775V (0dBm) 入力インピーダンス40k Ω 以上 動作コントロール入力
Dimensions	Approx. 590 × 111 × 325 mm (w/h/d) (23 ¹ / ₄ × 4 ³ / ₈ × 12 ⁷ / ₈ inches) including projecting parts and controls	最大外形寸法	590 × 111 × 325mm (幅/高さ/奥行き)
Weight	Approx. 9.5 kg (20 lb 7 oz)	重量	約9.5kg

1-2. FEATURES

CCP-310

- High speed cassette duplication onto 3 copy cassettes at 8 times normal speed.
- Side select switch to select one-side duplication or both-side duplication.
- Auto-copy function to activate a series of tape operation automatically at the press of a button.
- Audio end detection to stop duplication automatically at the end of the program recorded on the original tape.
- Short tape indicator to show that duplication may be uncomplete due to a short copy tape and that a check is required.
- Peak level meters and recording level controls for properly balanced duplicates on each track.
- Audio and control output terminal for connecting an additional cassette to cassette printer with copy section only. Up to 10 additional printers can be connected in sequence.
- External input connector for connecting another CCP-310, allowing use of the CCP-310 as either master or additional printer.

CCP-314

- High speed duplication onto 4 copy cassettes at 8 times normal speed.
- Tape operation fully controlled by the connected CCP-310.
- Audio and control output terminal for connecting another CCP-314.

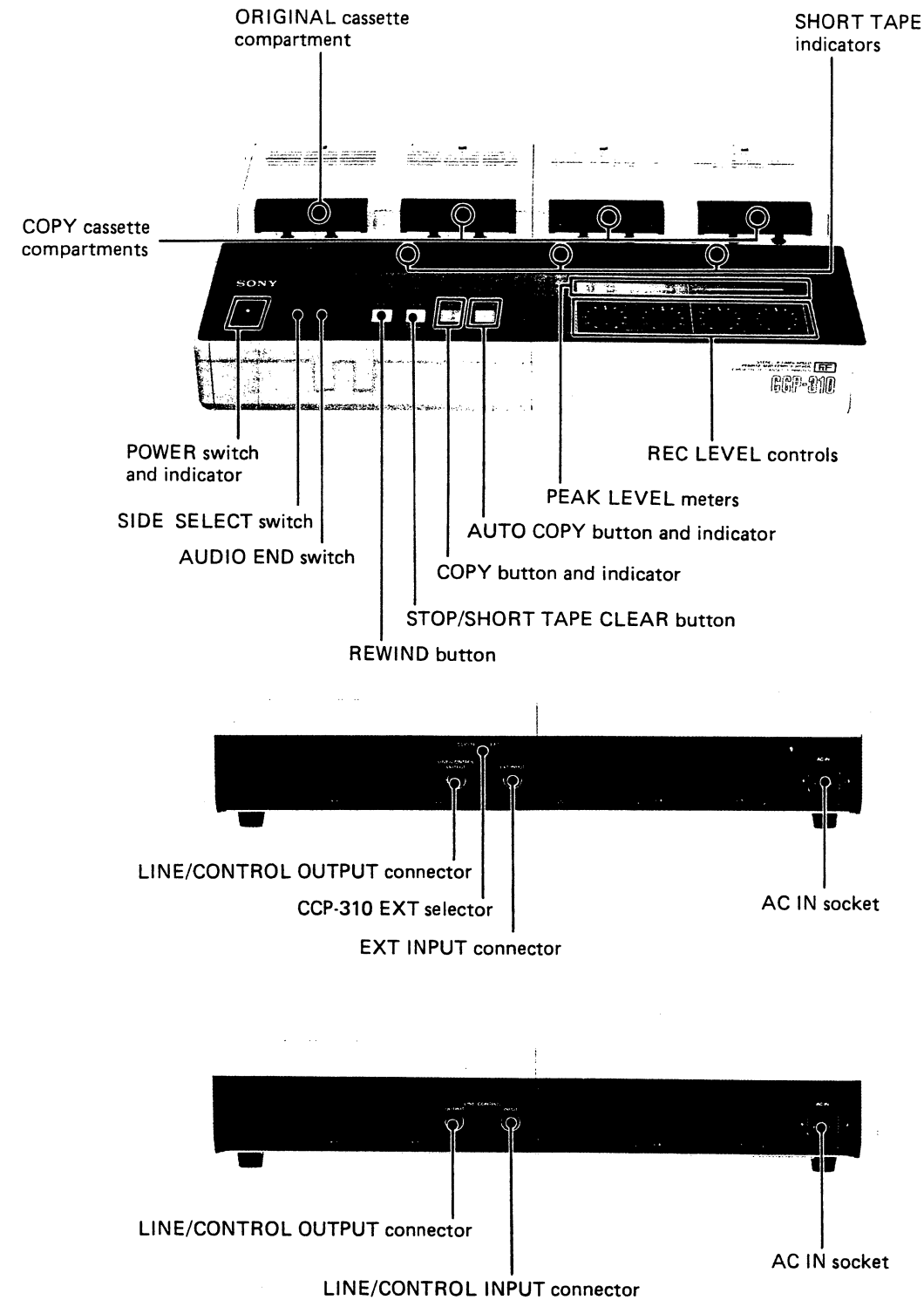
CCP-310

- 同時に3巻のカセットにコピーできる8倍速の高速カセットプリンター。
- 両面同時コピー、片面コピーの切り換えができる^{サイド}SIDE SELECTスイッチつき。
- ボタン1つで、テープの巻き戻し→コピー→巻き戻し→停止の一連の動作が自動的に行える^{オート}AUTO COPY機能つき。
- オリジナルテープの音声なくなると自動的にコピーを終了して、停止または巻き戻しに移る^{オーディオ}AUDIO END検出機能つき。
- コピー用テープが短いためにコピーが不完全な恐れがあり、チェックをする必要があることを示す^{ショート}SHORT TAPEインジケーターつき。
- トラック別にレベル調節ができる^{ピーク}PEAK LEVELメーターと^{レコード}REC LEVEL調節つまみつき。
- コピー専用カセットプリンターCCP-314接続用出力端子つき。必要なコピーカセット数に応じて、CCP-314が10台まで接続可能。
- CCP-310をもう1台接続してコピー専用機として使える外部入力端子つき。

CCP-314

- コピー用カセットが4巻入る、コピー専用8倍速高速プリンター。
- コピー用カセットの動作はすべて、CCP-310のボタン操作およびオリジナルカセットの動作によりコントロールされます。

1-3. EXTERNAL VIEWS



1-4. FUNCTION OF CONTROLS

SIDE SELECT switch

Select one side or both sides of the cassette for one duplication run.

A: For one side duplication. After duplication, the tapes will stop at the end.

A + B: For both side duplication. After duplication, all tapes will be rewound and stop at the beginning. When the SHORT TAPE indicator lights, however, the corresponding copy tape will not be rewound.

AUTO COPY button and indicator

Press to rewind and then duplicate the tapes. The indicator lights and all tapes are rewound to the beginning. When all the tapes have been rewound, playback of the original tape and recording on the copy tapes start. Recording also starts on the connected printer. When duplication is finished and all the tapes stop, the indicator goes off.

AUDIO END detection

When the AUDIO END switch is set to ON, the audio signals recorded on the original tape are detected during duplication. If there is a blank space of more than two seconds (16 seconds of normal playback time) on the original tape, it is treated as the end of the program, and duplication will stop automatically.

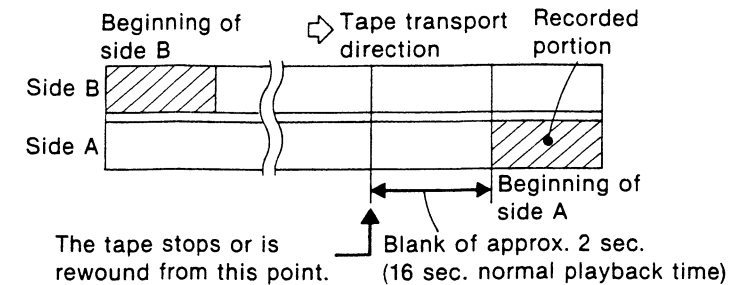
- The audio end detection works for the side being duplicated when the SIDE SELECT switch is set to A, or for both sides when the switch is set to A + B.

Note

The audio end detection may malfunction in the following cases and stop duplication in the middle of the program. In such cases, set the AUDIO END switch to OFF.

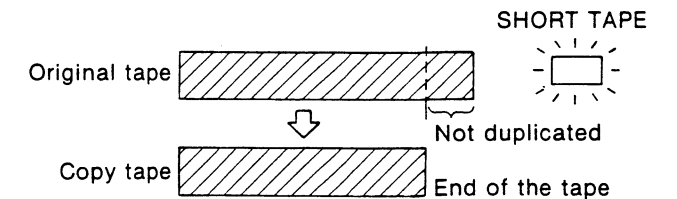
- when there is a blank of more than 16 seconds normal playback time or a program of very low volume level continues for the above duration.
- when duplicating both sides of an original tape which is prerecorded only at the beginning of each side.

Original tape



SHORT TAPE indicator

The SHORT TAPE indicator lights to show that a copy tape was so short that the duplication may not have been made completely and that a check is required. When a copy tape reaches the end before the end of the program of the original tape, it stops but the original tape continues running. The corresponding SHORT TAPE indicator will light approximately 2 seconds after the end of the program. The copy tape with its SHORT TAPE indicator lit will not be rewound even if the SIDE SELECT switch is set to the A + B position.



Note

When a copy tape reached the end just a moment after the end of the program of the original tape, the SHORT TAPE indicator may light even if duplication is complete. To confirm duplication, playing back near the end of the copy tape using a cassette recorder is recommended.

SIDE SELECT(コピー面切り換え)スイッチ

片面コピー、両面コピーを切り換えます。接続されているコピー機も自動的に切り換わります。

A : 片面(上側の面)のみコピーするとき。コピーが終わると、それぞれのテープの終わりで自動的に止まります。

A+B : 両面同時にコピーするとき。オリジナルテープの終わり(AUDIO ENDスイッチがONのときはオリジナルテープの音声の終わり)で全部のテープの巻き戻しが始まり、それぞれのテープの頭で自動的に止まります。ただし、SHORT TAPEインジケータが点灯すると、そのコピー用テープは巻き戻しされません。

AUTO COPY(オートコピー)ボタンとインジケータ

テープを巻き戻してからコピーを始めるとき押します。インジケータが点灯し、すべてのテープが頭まで巻き戻された後、オリジナルカセットは再生、コピー用カセットは録音状態になります。コピーが終わり、すべてのテープが止まるとインジケータが消えます。

オーディオ・エンドの検出

AUDIO ENDスイッチをONにすると、コピー中に、オリジナルテープに音声録音されているかどうかを検出します。約2秒間(通常再生速度にして約16秒間)音声がないと、自動的にコピーを終了します。

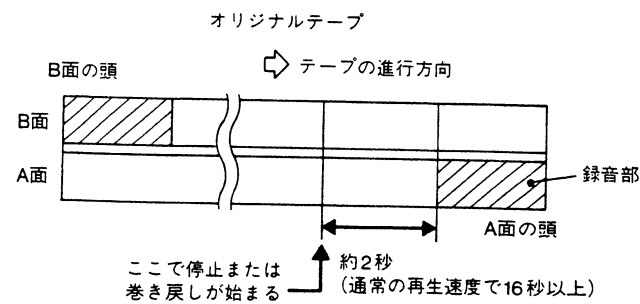
SIDE SELECTスイッチがAのときはコピーしている面の音声を、A+Bのときは両面の音声の有無を検出します。

ご注意

次の場合には、オリジナルテープの途中でコピーが終了してしまうことがあります。この場合にはAUDIO ENDスイッチをOFFにしてコピーしてください。

—通常の再生速度で約16秒以上、録音中断しているか、あるいはレベルが非常に低い部分のあるオリジナルテープの場合。

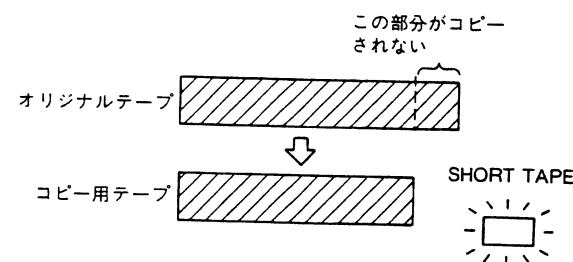
—A面およびB面の初めの部分だけ録音されているオリジナルテープを両面コピーするとき。



SHORT TAPEインジケータ

SHORT TAPEインジケータは、コピー用テープが短いためにオリジナルテープの内容が完全にコピーされていない恐れがあり、コピーが完全かどうかチェックする必要があることを示します。

コピー中、オリジナルテープにまだ音声が入っているのにコピー用テープが先に終わると、オリジナルテープはそのまま走り続けます。その後、オリジナルテープの音声が終わってから約2秒後に、SHORT TAPEインジケータが点灯します。この場合、SIDE SELECTスイッチの位置がA+Bであっても、そのコピー用テープは巻き戻しされず、停止したままになります。



ご注意

オリジナルテープの音声の終わりとコピー用テープの終わりの時間差がごくわずかな場合、最後までコピーされていてもSHORT TAPEインジケータが点灯することがあります。(同じタイプのテープでも、テープの長さのバラツキにより、このような現象が起こることがあります。) コピー用カセットを取り出し、別のカセットレコーダーなどで最後の部分を再生し、確認してください。

2-1. TIMING CHART

SIGNAL NAME	PIN NO.	IC206	IC208	INITIAL MODE	COPY	STOP	REW	AUTO COPY	CHANNEL SW A+B → A
P0	9	—	—	5ms					
P1	10	—	—						
K0	38	—	—						
K1	39	—	—						
K2	40	—	—						
K3	41	—	—						
S0	5	4	—	20μs					
O7	20	41	—						
O6	19	40	—						
O5	18	39	—						
O4	17	38	—						

SIGNAL NAME	IC206, 208 PIN NO.	INITIAL MODE	COPY	STOP	REW	COPY	REW	STOP	AUTO COPY (REW)
P3 REW	12				200ms	50ms	200ms		
P2 COPY	11		200ms		500ms				
R15 BRAKE KICK	37	100ms	50ms		600ms				
R14 BRAKE HOLD	36	150ms							
R13 HEAD KICK	35	100ms	150ms		650ms				
R12 HEAD HOLD	34								
R10	32								
R9	31								
R8	30				600ms	500ms			
R4 BIAS	26 (IC208)	200ms			700ms				
O3 AUTO COPY LED	16 (IC206)		200ms						
O2 COPY LED	15 (IC206)				500ms				
R6 SHUT OFF	28	This signal goes "high" only in the following case: • Immediately after POWER ON. • During shut off between REW and COPY in AUTO COPY mode. • When auto REW completed. つぎの時のみHighとなる。 • POWER ON直後。 • AUTO COPY時のREW→COPY間のshut off時。 • Auto REW終了時。							

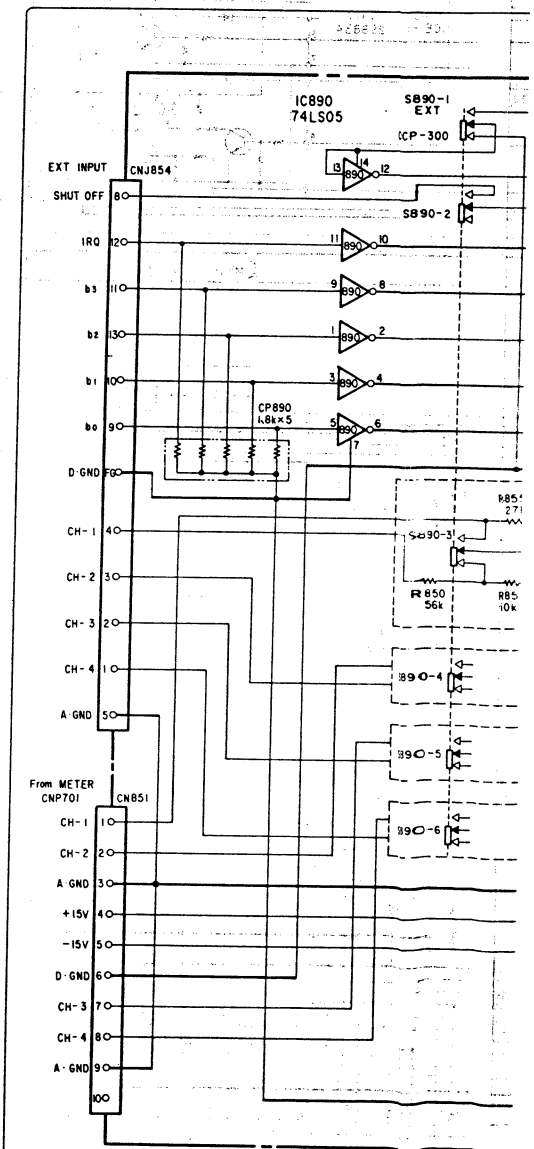
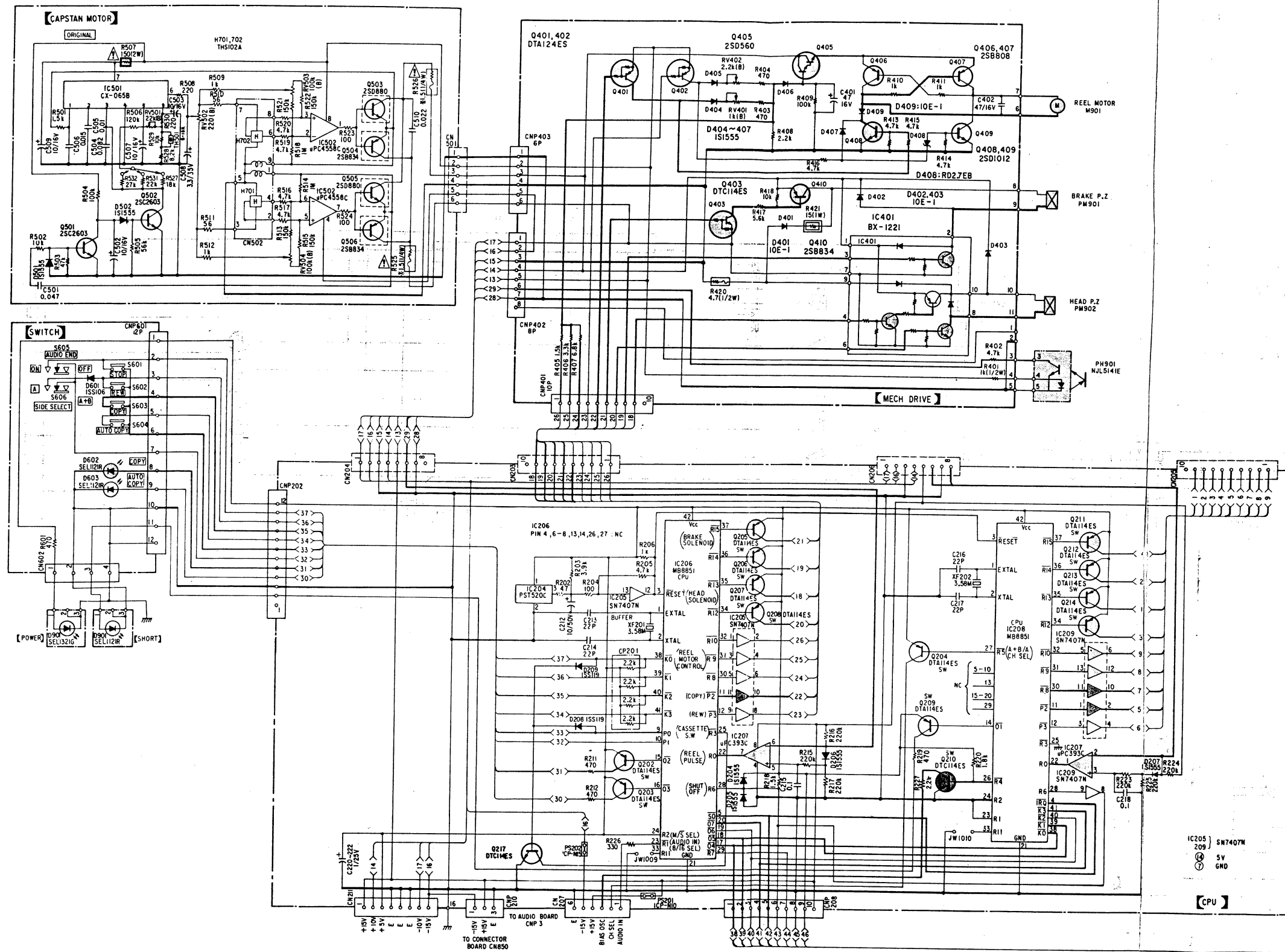
CCP-310 CCP-310

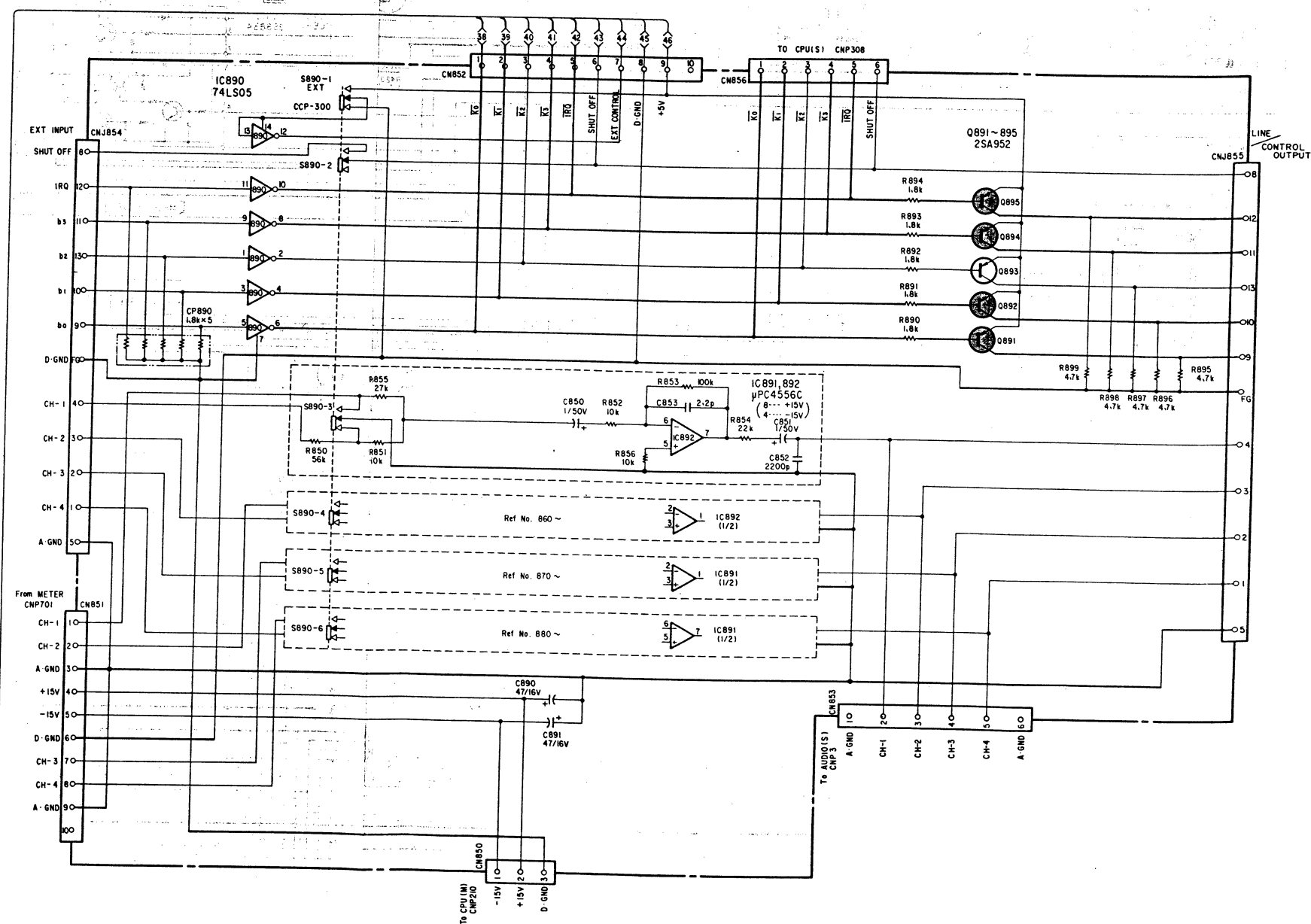
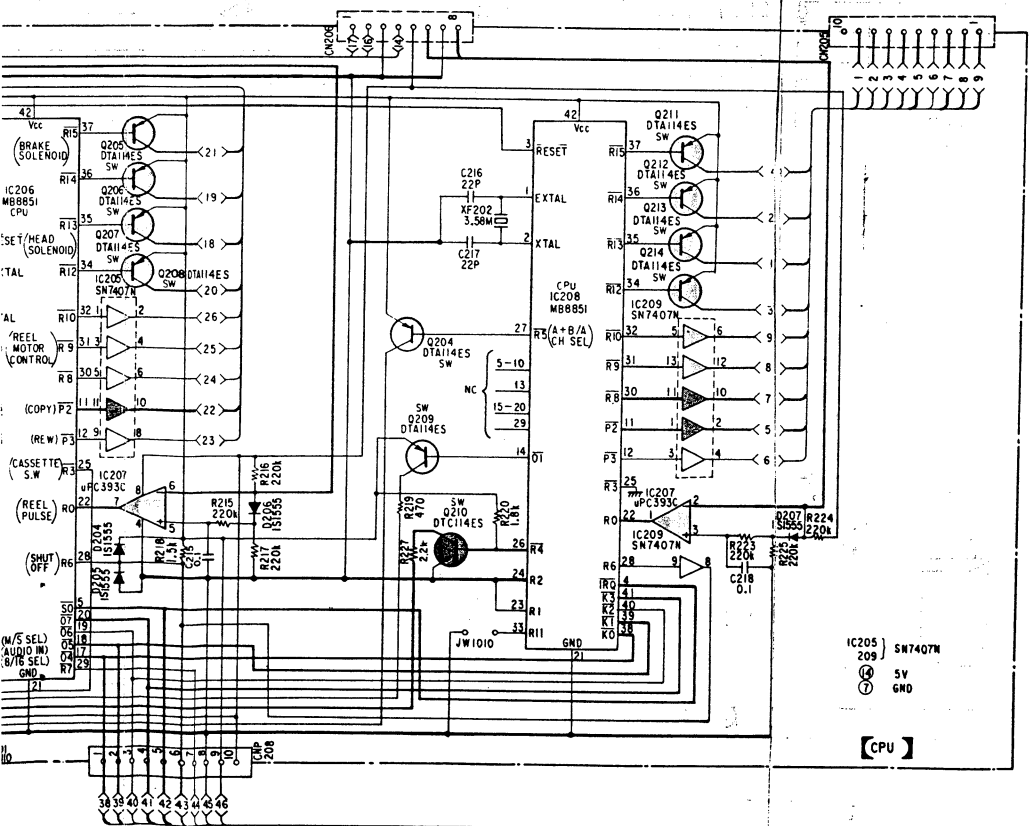
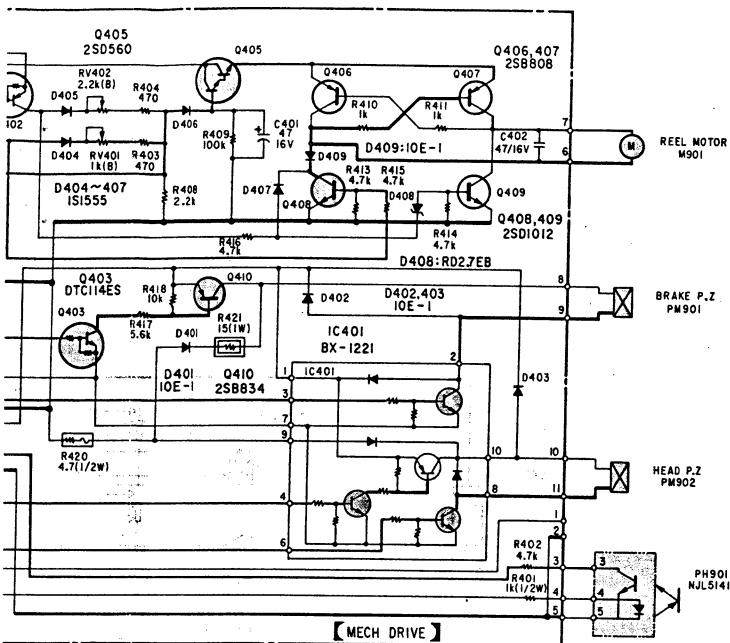
2-2. OPERATION STATE

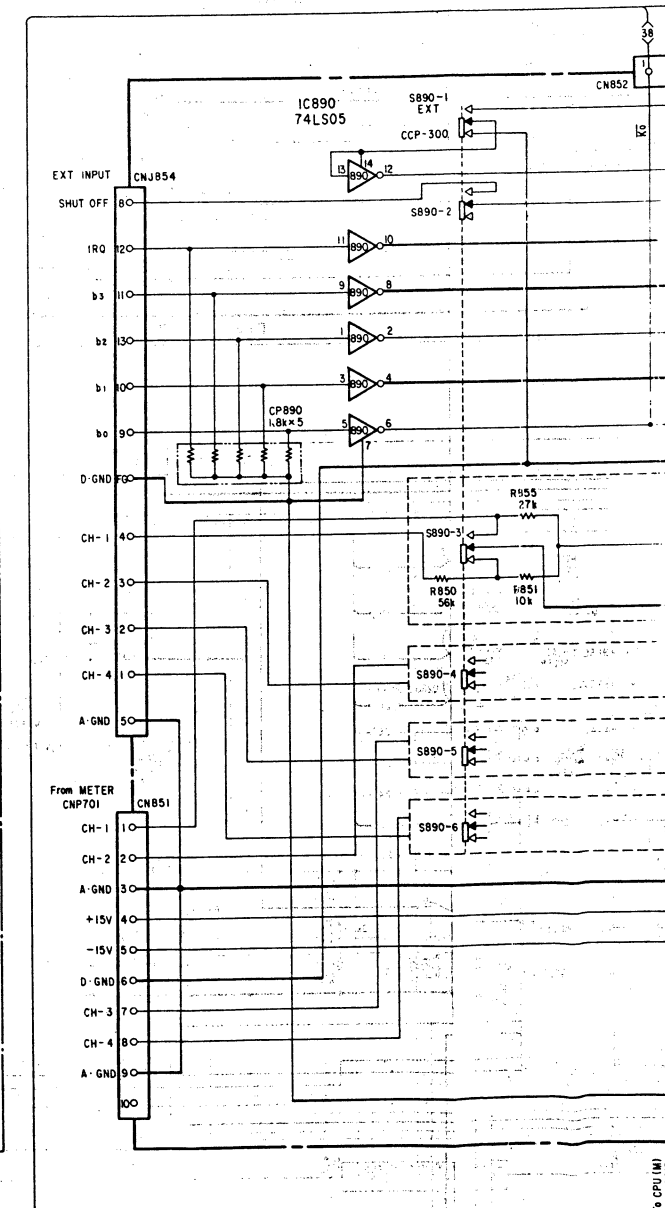
 ; Operating or high portion (動作またはHighの個所)
 ; Operating or low portion (動作またはlowの個所)

STOP → COPY

CPU (M)

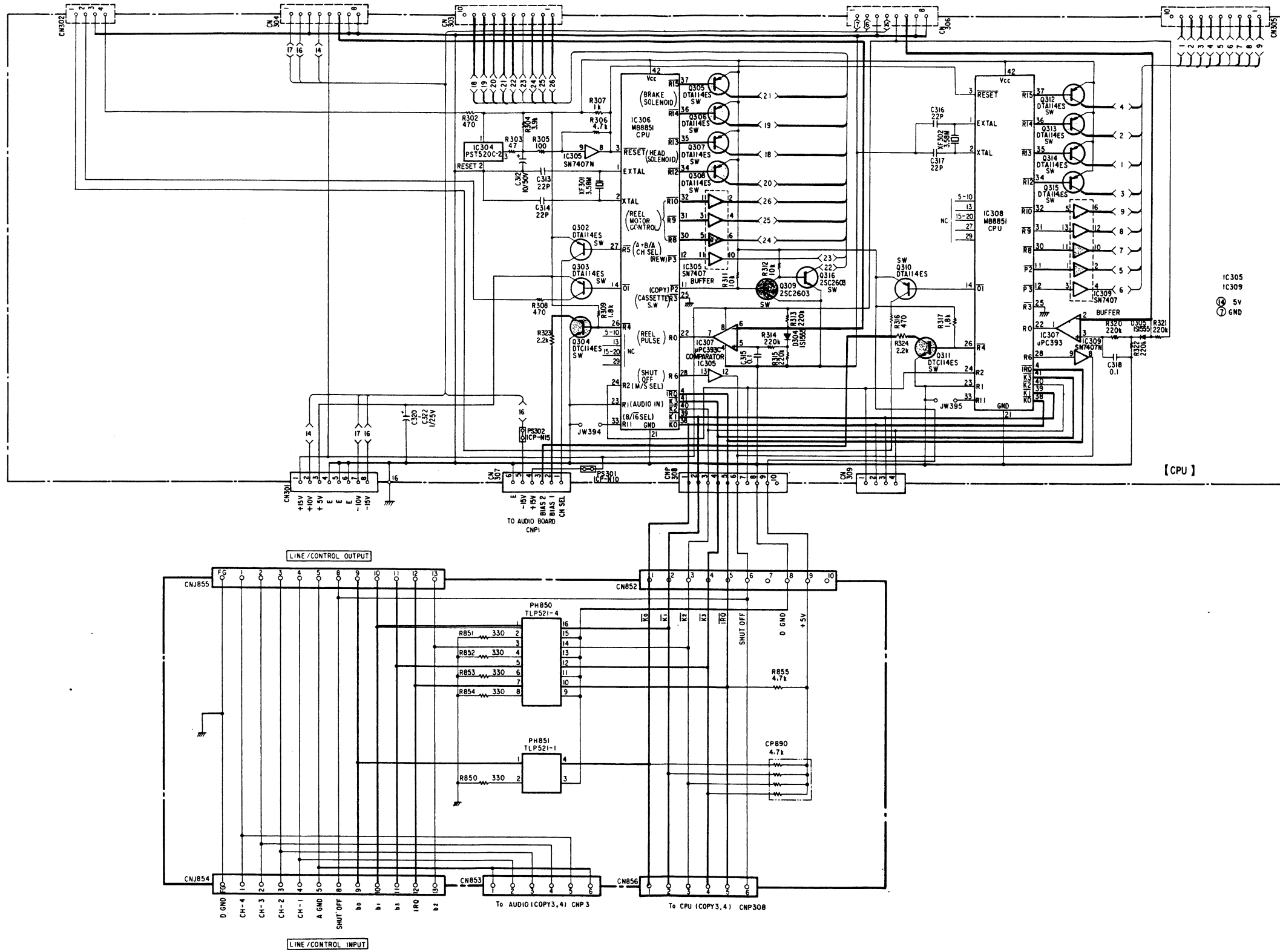






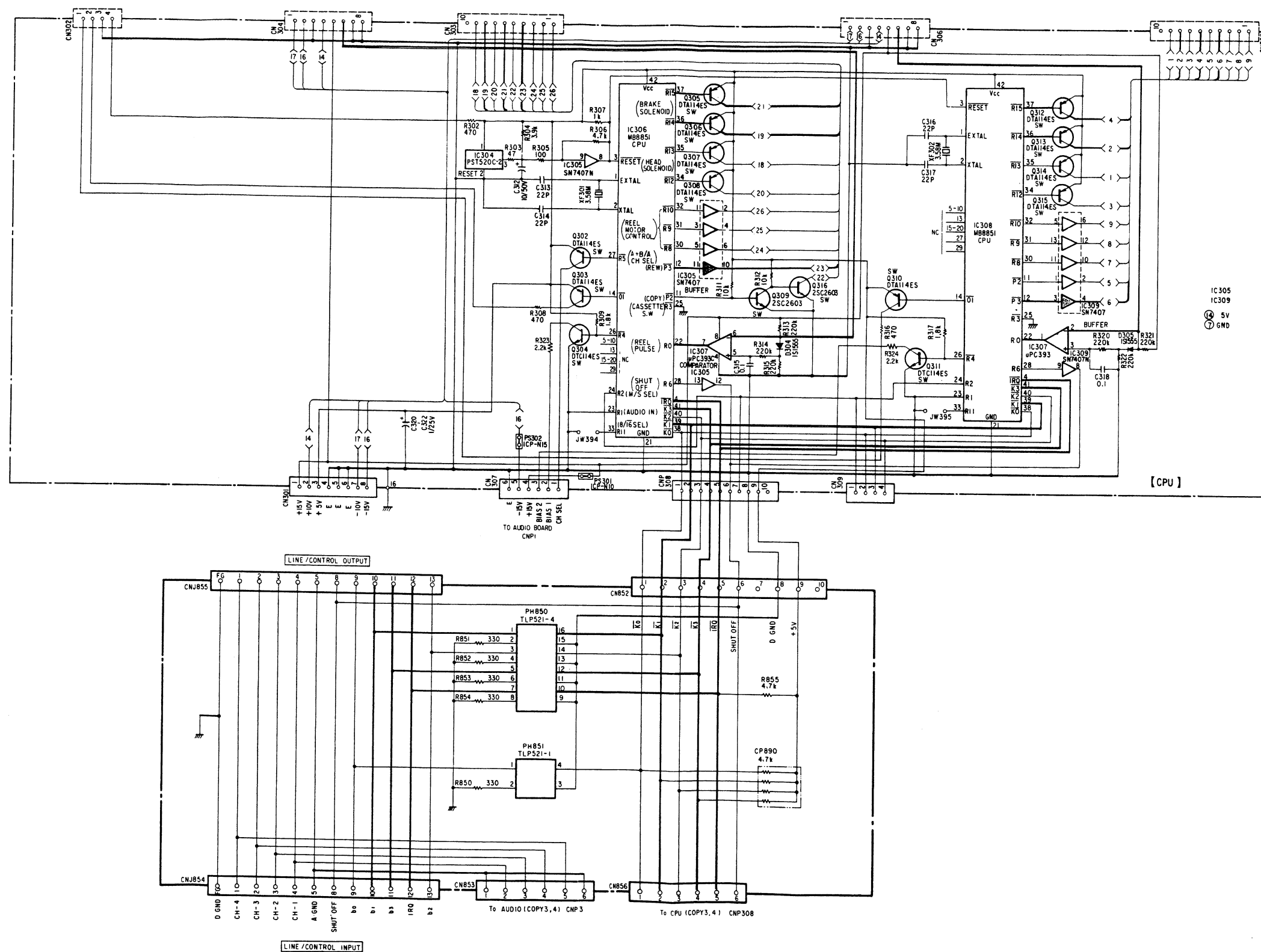
CCP-314 CCP-314

STOP → COPY
CPU (S)



CCP-314 CCP-314

STOP → REWIND
CPU (S)



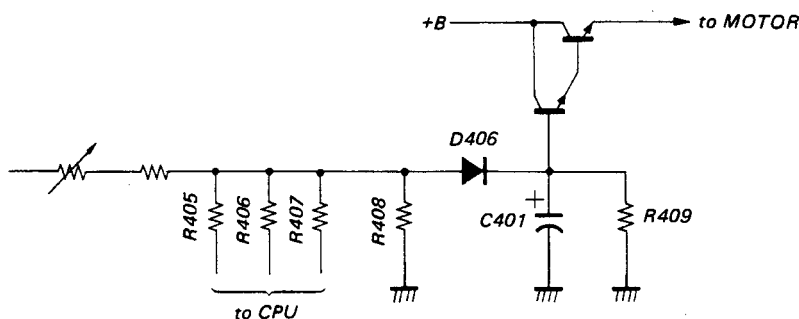
2.3. REEL MOTOR VOLTAGE CONTROL (in REW mode)

To shorten rewind time, a reel motor voltage is raised gradually from start of rewinding operation, however, to absorb a shock at the completion of rewinding, the voltage is controlled so that Reel table rotation does not exceed 900 rpm.

This control is made by grounding R405, R406, and R407 on the Mech drive board by CPU.

REW時間を短くするため、リールモーター電圧を REW 開始時から徐々に高めてゆくが、巻き終りの衝撃を和らげるため、リール台の回転が、900rpm 以上にはならないように制御している。

この制御は、メカドライブ基板のR405, 406, 407を CPU にてアースすることで行っている。

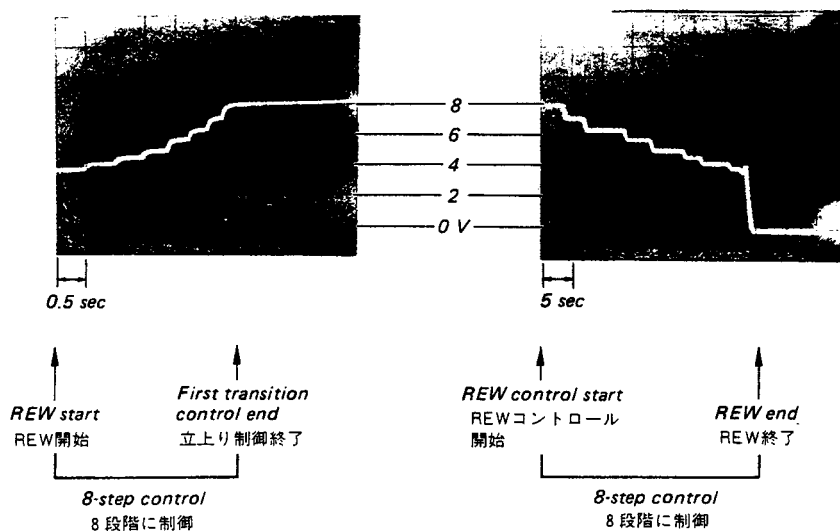


C401 and R409 are inserted to smooth a voltage change to prevent a tape from slackening.

C401, R409は、電圧変化を滑らかにし、テープのたるみを防止するために入れてある。

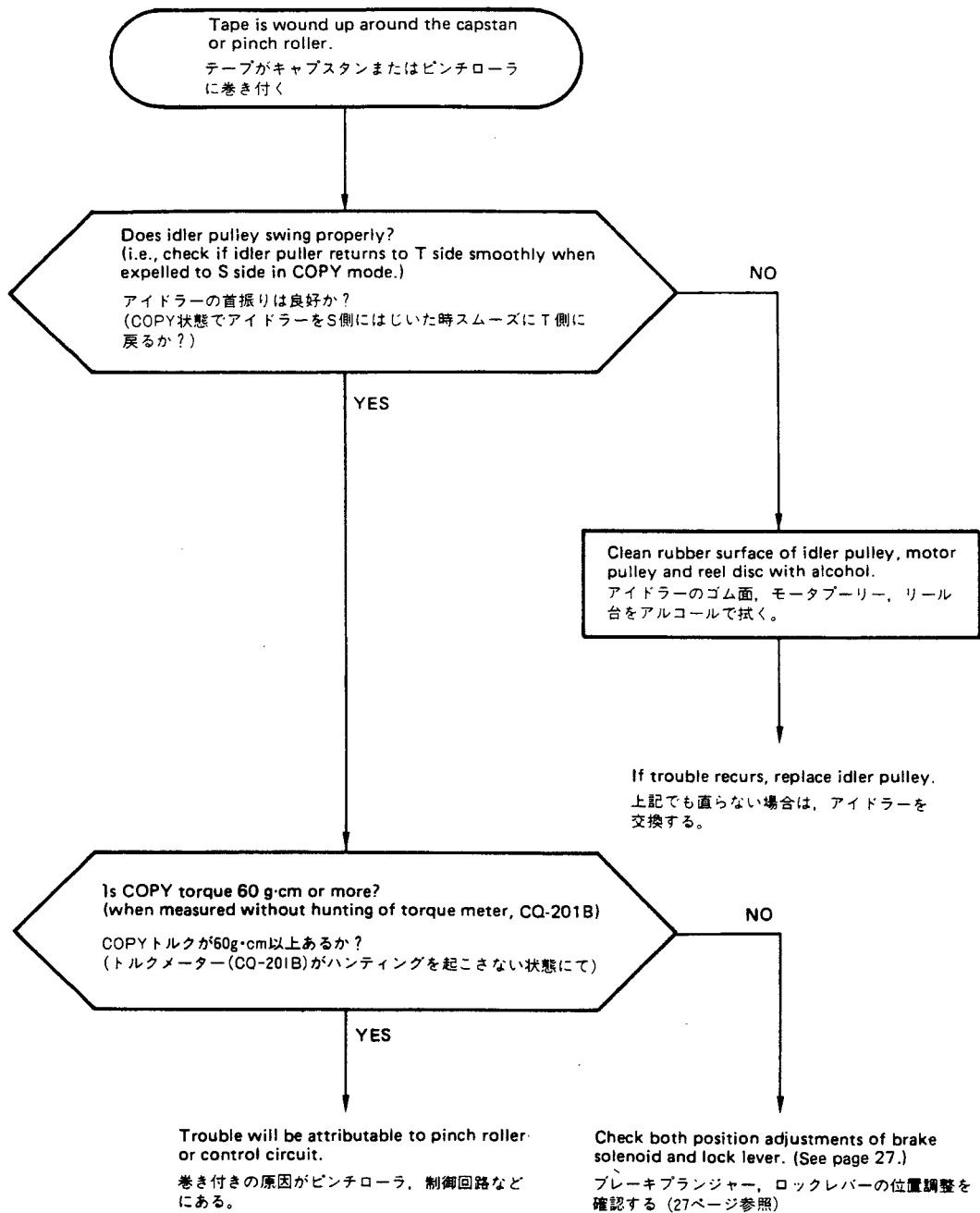
Waveform of reel motor voltage

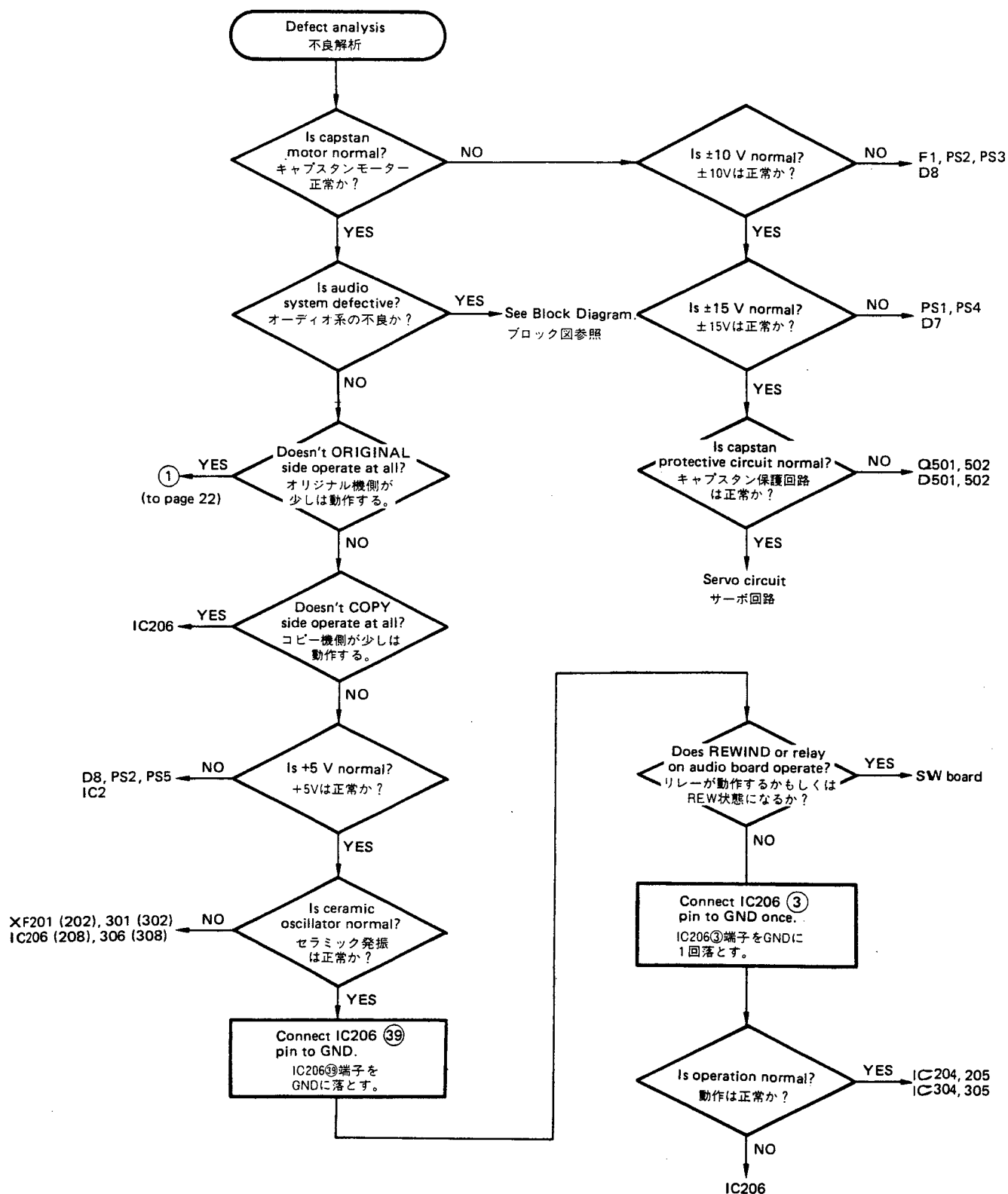
リールモータ端子電圧の波形

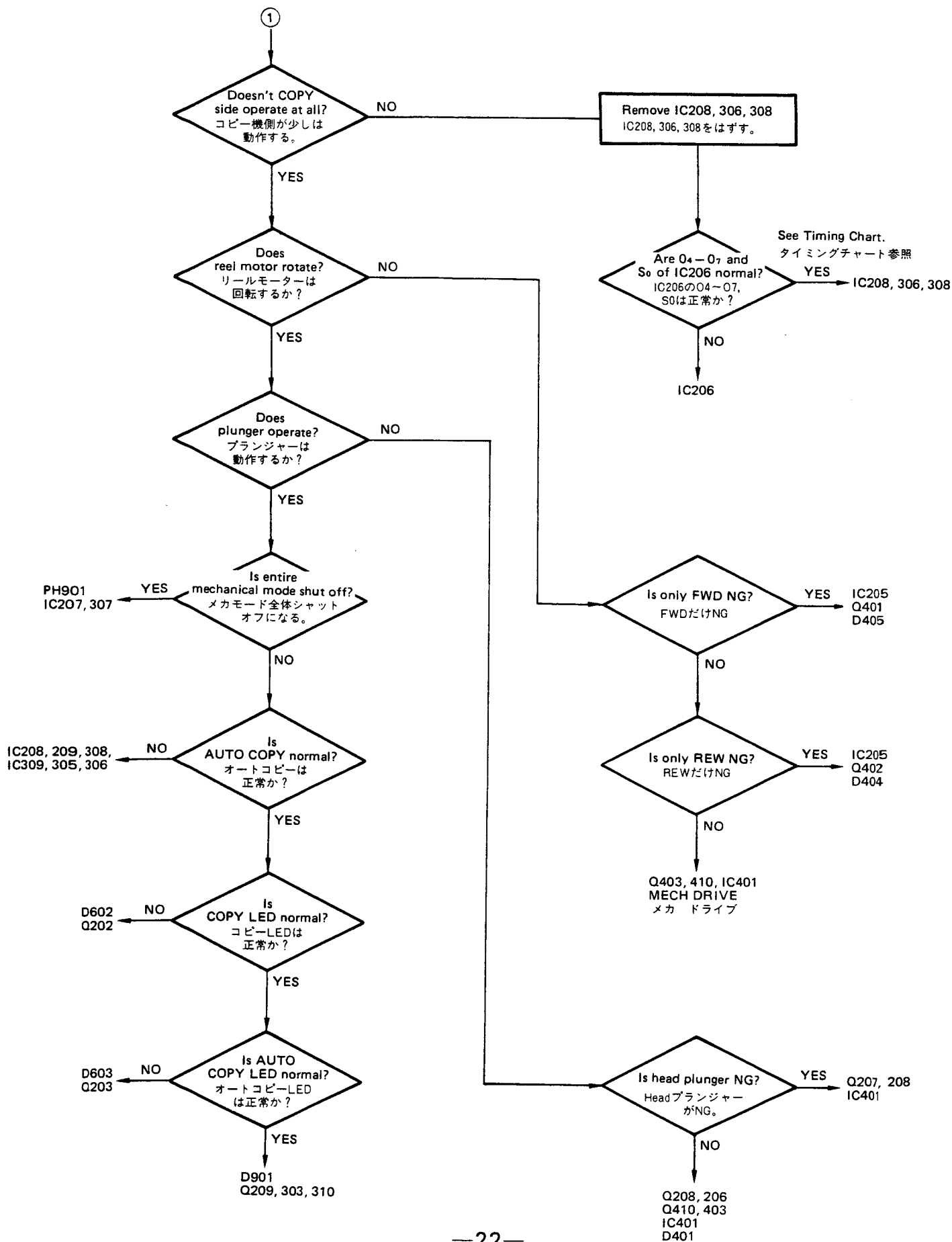


SECTION 3

TROUBLE SHOOTING







SECTION 4

CHECK AND MAINTENANCE

The following parts need a periodical check and a replacement. Do the cleaning, inspect and replace at the standard of the time on the list.

つぎの部品は定期点検、交換を必要とします。表に示された時間を目安として清掃、点検、交換を行ってください。

1-541-163-00

Item	Part No.	Ref. No.	Operating Hours								Note
			500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	
Tape Guide	8-825-724-00	76	○	○	○	◆	○	○	○	◆	
Reel Motor Ass'y	A-2133-112-A	M901, 902	—	◇	◇	◆	—	◇	◇	◆	
Capstan Motor	1-541-316-11	505	○	○	○	○	○	◇	◇	◇	
Reel Table Ass'y	X-3162-317-1	52	○	◇	◇	◆	○	◇	◇	◆	
Cluth Felt	3-162-310-01	54									Supply side
B.T. Ring	3-162-356-01	55	—	—	—	◆	—	—	—	◆	Supply side
Reflector	3-155-352-00	57									Take Up side
Idler Pully Ass'y	A-2191-025-A	53	○	◇	◇	◆	○	◇	◇	◆	
Pinch Roller Ass'y	X-3162-306-1	91									
Brake Rubber	3-162-366-01	43	—	—	—	◆	—	—	—	◆	

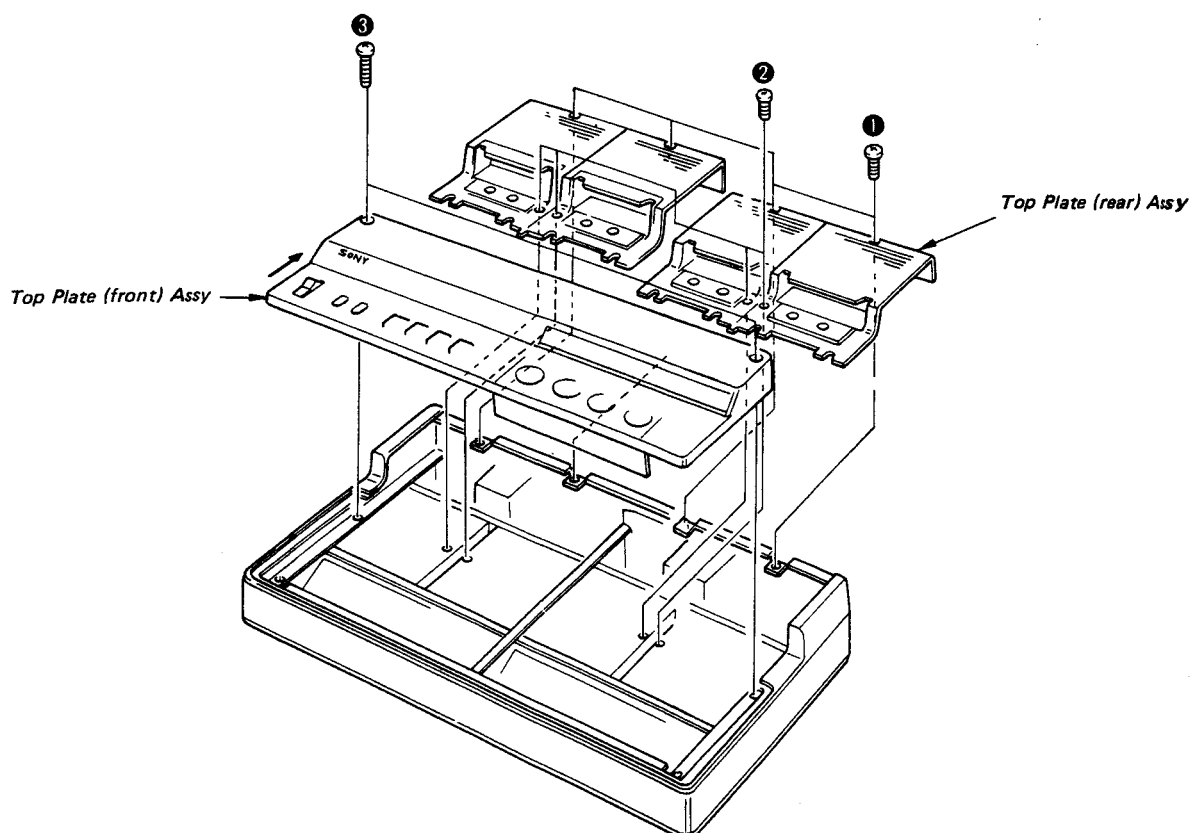
○: Cleaning ◇: Inspection ◆: Exchange
清掃 点検 交換

PROCEDURE OF HEAD REPLACEMENT

1. Take out the ① and ② screws and remove the Top Plate (rear) Assy.
2. Take out the ③ screw and push ↑ direction and remove the Top Plate (front) Assy. (Refer to the method in 5-1 CAUTION.)

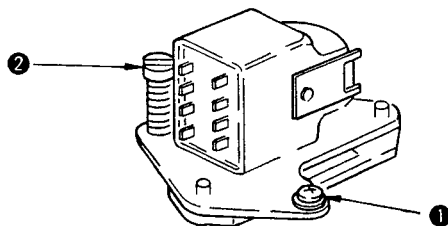
ヘッド交換の手順

1. ねじ①、②を外し、天板組立(後)を外す。
2. ねじ③を外し、天板組立(前)を↑方向に押して外す。
(5-1. CAUTIONに着脱方法について説明してあります。)



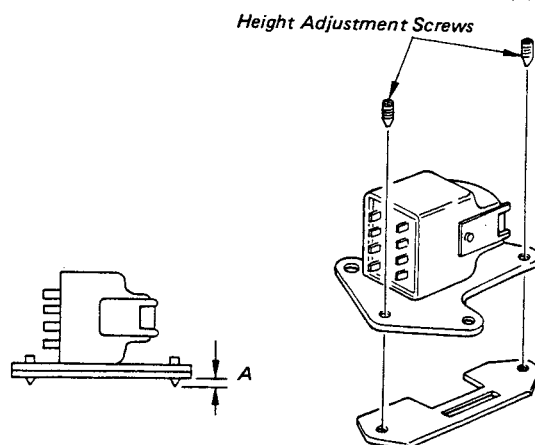
3. Unsolder the Head leads (after removing the Head shield in the ORIGINAL unit).
4. Take out the ① and ② screws securing the Head.

3. ヘッドのリード線の半田付をはずす。(オリジナル機はヘッドシールド板をはずしてから)
4. ヘッドを固定しているねじ①, ②を外す。



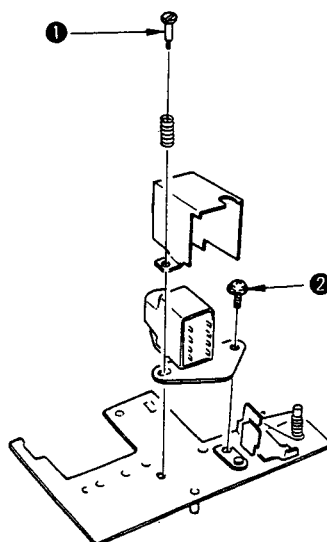
5. Measure the stick out length A of the Height Adjustment Screw.
Thread a new Spacer through the new Head and fasten the new Height Adjustment Screws. Adjust the screws to the stick out length A.

5. 高さ調整ねじの突き出し量Aを測る。新しいヘッドに新しいスペーサーを通し、新しい高さ調整ねじを取付ける。
このとき、同じ突き出し量になるようにねじを調整する。



6. Replace the Spacer of the Head Chassis Assy with a new Spacer.

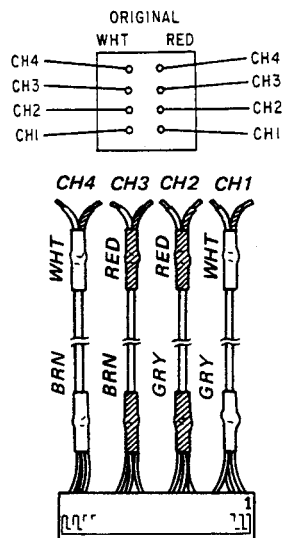
6. ヘッド基台のスペーサーを新しいスペーサーと交換する。



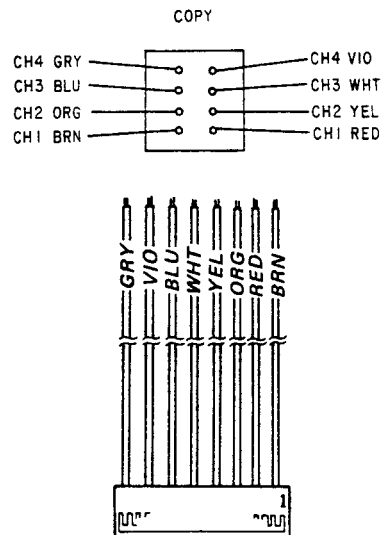
7. Secure the Head with the ① and ② screws. The ① screw is not for adjustment and should be tightened. Adjust the Head parallel to the Head Chassis Assy temporary with tightening the ② screw.

7. ねじ①, ②でヘッドを固定する。①のねじは調整用ではないので最後まで締め、②のねじを締めながら、ヘッド基台とほぼ平行になるよう仮調整する。

8. Solder the Head leads.

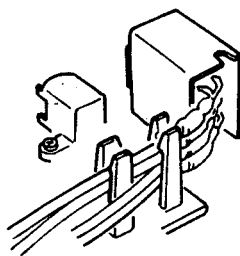


8. ヘッドのリード線をハンダ付けする。



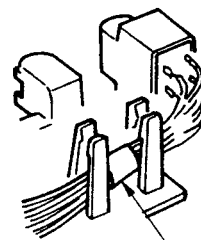
9. Put the leads in the lead clumper.

ORIGINAL unit



9. リード線を、リードクランパーに入れる。

COPY unit



In the COPY unit, put the leads using the tube.
コピー機は、チューブを使って入れる。

SECTION 5 ADJUSTMENT

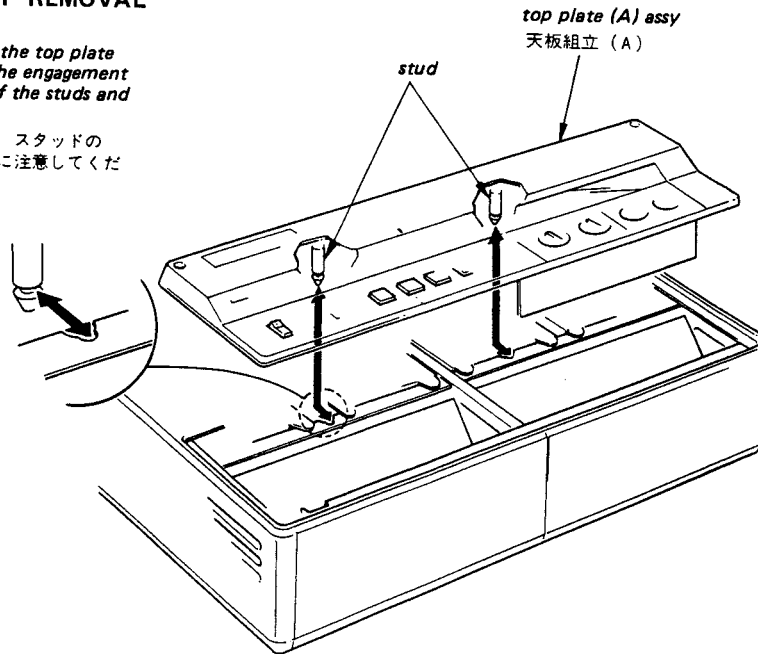
5-1. CAUTION

TOP PLATE (A) ASSY REMOVAL

In attaching and removing the top plate (A) assy, take care about the engagement between the narrow part of the studs and frame.

天板組立 (A) の着脱時には、スタッドのくびれとフレームの端み合いに注意してください。

天板組立 (A) の取り外し



SWITCHING THE MODE IN ONLY THE CCP-314

Select the slide switch (S601) on the MAINTENANCE board at the rear of FRONT TOP PLATE to MAINTENANCE side from NOP side, before power on the CCP-314.

Note: If select the slide switch after power on the CCP-314, the switch for MAINTENANCE dose not act.

CCP-314単独でのモード切替方法

CCP-314に電源を投入する前に、メンテナンス基板(FRONT TOP PLATE の裏にあります。)上のスライドスイッチ (S601) をNOP側からMAINTENANCE側に切り換えます。

注) 電源投入後にスライドスイッチ (S601) を切り換えてもMAINTENANCE用スイッチは動作しません。

5-2. TEST TAPE

Type	Part No.	Signal	
		Frequency (Hz)	Level (dB)
P-4-L300	7-819-011-11	315	0
P-4-A063	7-819-014-11	6.3 k	-10
P-4-A100	7-819-016-11	10 k	-10
WS-48A	7-819-032-11	3 k	0
CQ-012C	8-909-708-02	Mirror, 12 μ base	
CQ-201B	8-909-708-41	Torque	

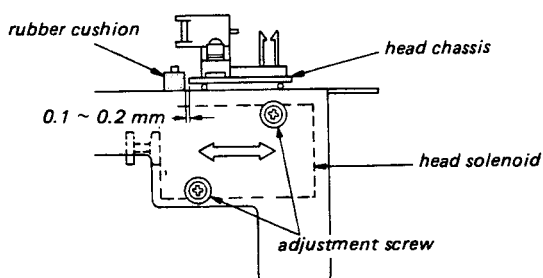
5-3. MECHANICAL ADJUSTMENT

Head Solenoid Position Adjustment

Mode: COPY

Adjust the head solenoid position so that the head chassis comes in position relate to the rubber cushion as shown in the figure.

ヘッド基板の位置がゴムクッションに対して、図のようになるよう、ヘッドプランジャーの位置を調整する。

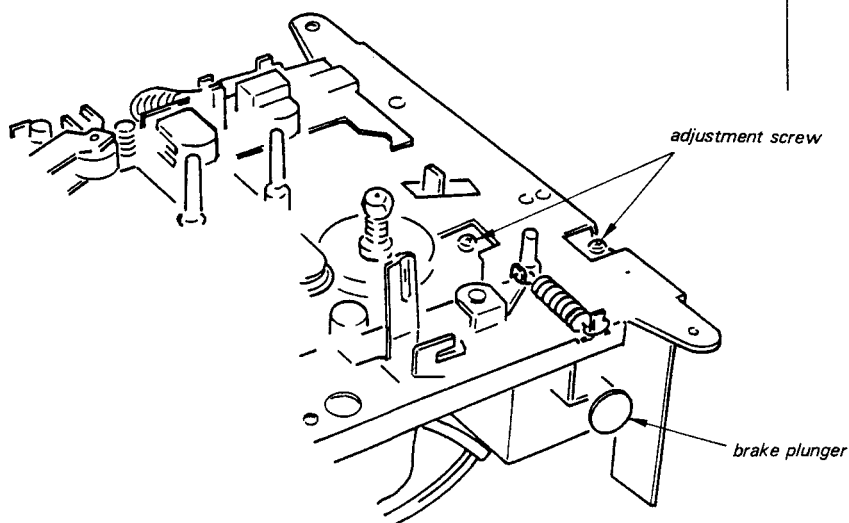
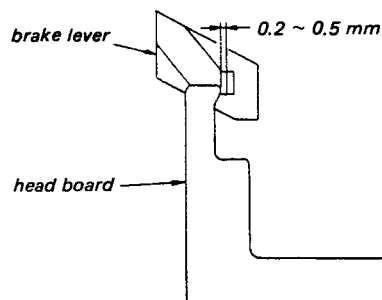


Lock Lever Position Adjustment

Mode: COPY

1. Make the brake solenoid operated (by manually pushing in the plunger as far as it will go).
2. Adjust the brake plunger position so that a clearance between head board and brake lever is made as shown in figure.

1. ブレーキプランジャーをON状態にする。
(手で一杯まで押し込む)
2. ヘッド基板とブレーキレバーのすき間が図のようになるようブレーキプランジャーの位置を調整します。



Capstan Motor Adjustment (Offset, Balance)

Setting:

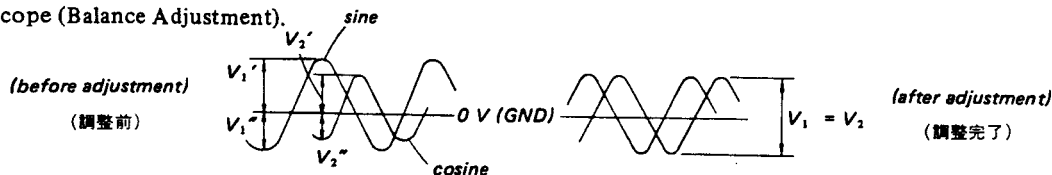
Output CN502 PIN 1, 9 (Capstan Motor Board)

Mode STOP

Procedure:

1. Adjust the position control of the oscilloscope to center the trace over the center graticule line for two inputs.
2. Adjust RV503 and RV504 so that V_1' is equal to V_1'' and V_2' is equal to V_2'' on the oscilloscope (Offset Adjustment).
3. Adjust RV502 so that V_1 is equal to V_2 on the oscilloscope (Balance Adjustment).

1. シンクロスコープの0Vの軌跡を2入力とも同じ位置に合わせる。
2. $V_1' = V_1''$, $V_2' = V_2''$ になるようRV503, 504を調整する(オフセット調整)。
3. $V_1 = V_2$ となるよう, RV502を調整する(バランス調整)。



Capstan Motor Adjustment (CCP-310)

Setting:

Output CN855 PIN 4, 5 (CONNECTOR BOARD)

Procedure:

1. Execute playback (COPY mode) of the test tape (WS-48A).
2. Adjust RV501 so that the following specification is fulfilled in the middle of the tape.

1. テストテープ(WS-48A)を再生(COPY状態)する。
2. テープの中央で、周波数が、規格を満足するようRV501を調整する。

Specifications:

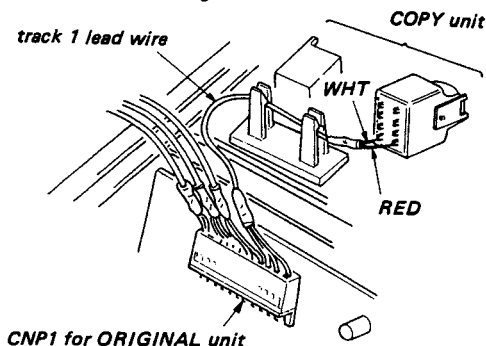
24 kHz $\pm 0.5\%$ (ORIGINAL)

23.76 kHz $\pm 0.5\%$ (COPY)

Note:

1. Adjust the capstan motor of the COPY unit by utilizing the playback-amplifier of the ORIGINAL unit after exchanging decks each other.
2. To exchange each deck, exchange two connectors coming from the CPU board and also exchange head terminal by soldering.
3. As shown in the specification above, a speed difference is given between ORIGINAL unit and COPY unit (1%) so as to avoid omission of recording due to variation in tape length.
4. Both offset and balance should be adjusted before this adjustment.
5. When the head azimuth adjustment is needed in the COPY unit, perform the adjustment during this time that the decks are exchanged.

1. COPY機については、デッキをORIGINAL機と交換してその再生アンプを利用して調整する。
2. デッキを交換するには、CPU基板からの2本のコネクタは差し換え、ヘッド端子はハンダで付け換える。
3. 規格に掲げたとおりテープ長さのバラツキによって、録音されない部分の出ることを防ぐため、ORIGINAL機とCOPY機にスピード差を設けています。(1%)
4. この調整の前には、オフセット、バランス調整がなされていること。
5. COPY機のヘッド垂直調整の必要がある時は、デッキを交換してあるこの時行うこと。



Capstan Motor Adjustment (CCP-314)

1. Connect to CCP-310.
2. Duplicate the test tape (WS-48A) on a blank tape.
3. Playback the recorded portion with a standard playback unit.
4. Unless a frequency obtained in the middle of the tape falls in the specification, make adjustment by turning RV501.

Specifications: 3030 Hz \pm 1%

Note:

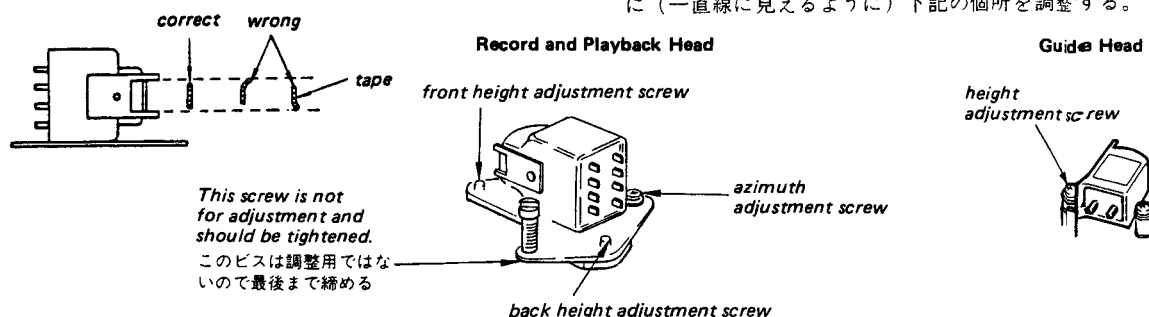
1. The CCP-310 ORIGINAL unit should properly be adjusted before this adjustment.
2. Both offset and balance should be adjusted before this adjustment.
3. A speed difference is given between ORIGINAL unit and COPY unit (1%) so as to avoid omission of recording due to variation in tape length.
4. The capstan motor will speed up if RV501 is turned clockwise.
5. Adjustment will become easier if you, at first, adjust RV501 so that an output frequency of No. 1 or 9 pin of the CN502 is 160 Hz in a STOP mode without loading a cassette tape.
6. If adjustment is made without using the CCP-310, perform a recording by entering a 24 kHz signal from LINE/CONTROL INPUT terminal. In this case, the specification is 3.030 Hz \pm 0.5%.
7. Use alternatively the CCP-310 COPY unit method (exchanging decks).

1. CCP-310と接続する。
2. テストテープ(WS-48A)を未収録テープにCOPYする。
3. 録音したテープを標準再生機で再生する。
4. テープの中央で周波数が規格に入らない場合は、RV501を回して調整する。

1. この調整の前には、CCP-310 ORIGINAL機のスピードが正しく調整されていること。
2. この調整の前には、オフセット、バランス調整が行なわれていること。
3. テープ長さのバラツキによって、録音されない部分の出ることを防ぐため、ORIGINAL機とCOPY機にスピード差を設けています。(1%)
4. RV501は、時計方向に回すとスピードが上がる。
5. STOP状態でカセットテープなしの時のCN502の1又は9番ピン出力の周波数が160HzになるようにRV501を仮調整してから行くと、調整し易い。
6. CCP-310を使わないで調整する場合は、LINE/CONTROL INPUTより0dB、24kHzの信号を入れて録音する。この場合の規格は、3,030Hz \pm 0.5%となります。
7. CCP-310のCOPY機の方法で行うこともできます。(デッキ交換方式)

Head Height Adjustment

1. Install a mirror tape cassette (CQ-012C) and depress COPY button and STOP button alternately and watch the tape at tape guide.
2. In COPY mode, if tape is curled along tape guide, adjust the respective adjustment parts shown below.



Note:

Also pay attention to head verticality and flapping, and execute visual confirmation.
For this, turn the front and back height adjustment screws and the vertical adjustment screw each for about the same amount.

1. ミラーテープ(CQ-012C)を装着し、COPY \leftrightarrow STOPをくり返して、テープがテープガイドに正常にホールドされているかどうかを確認する。
2. COPY状態にして、もしテープがテープガイドに当たってカールするようであれば、テープがねじれないように(一直線に見えるように)下記の個所を調整する。

ヘッドの垂直、あおりにも注意し、目視にて確認する。
このため、前後の高さ調整ねじ、垂直調整ねじとも同程度ずつ回すようにする。

Head Azimuth Adjustment (CCP-310)

PLAYBACK HEAD

Setting:

Output CN855 PIN 4, 5 (CONNECTOR BOARD)

Procedure:

1. Execute playback (COPY mode) of the test tape (P-4-A100).
2. Adjust the screw so that the output become a maximum.

Note: As peaks also occur before and after the correct vertical position, adjust to the maximum peak.

1. テストテープ(P-4-A100)を再生(COPY状態)します。
 2. 出力が最大になるよう垂直調整ねじで調整します。
- 注) 正確な垂直状態の前後にもピークが出るので、最大のピークに合せる。

RECORD HEAD

Procedure:

1. Connect each channel of the Record Head serialy and the output to the VTVM with MYLAR CAPACITOR (0.0022 μ F).

Note: Connect the \ominus GND side of the VTVM to chassis.

2. Remove the CNP3 from the Audio (M) board and the CNP1 from the Audio (S) board.

(For the output level is -60 dB, the output can not be read in the connecting situation as it is masked by bias signal.)

3. Playback the test tape (P-4-A063) and find the peak point with the Head azimuth adjustment screw. (Pre adjustment)

4. Playback the test tape (P-4-A100), find the peak point, and apply rocking agent to the Head azimuth adjustment screw.

Note: As peaks occur before and after the correct Head azimuth adjustment, adjust to the maximum peak.

1. 録音ヘッドの各チャンネルを図のように接続し、VTVMの端子にマイラーコンデンサ(0.0022 μ F)を接続します。

注) VTVMの \ominus GND側はシャーシへ接続する。

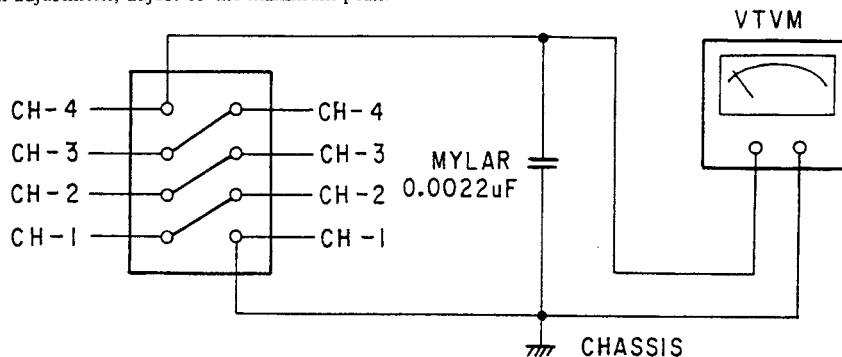
2. オーディオ基板の CNP3(Audio(M)), CNP1(Audio (S)) をはずします。

(出力レベルが-60dB程度のため、接続した状態では、バイアス信号でマスクされて出力を読むことができない。)

3. テストテープ(P-4-A063)を再生し垂直調整ネジでピーク点をさがす。(仮調整)

4. テストテープ(P-4-A100)を再生しピーク点をさがして垂直調整ねじをネジロックで固定する。

注) 正確な垂直状態の前後にもピークが出るので最大ピークに合せる。



Head Azimuth Adjustment (CCP-314)

Procedure:

1. Connect the connector of Record Head to HEAD AZIMUTH board that is attached with MAIN-TENANCE board.

2. Connect H terminal of HEAD AZIMUTH board to \oplus side of VTVM and 4T terminal of HEAD AZIMUTH board to \ominus side of VTVM with MYLAR CAPACITOR (0.0022 μ F).

Note: Connect the \ominus GND side of VTVM to chassis.

3. Disconnect the CNP1 on the Audio (S) board.

4. Execute playback of the test tape (P-4-A063) and find the peak point. (Pre adjustment)

5. Execute playback of the test tape (P-4-A100), find the peak point and set the screw by rocking agent.

Note: As peak also occur before and after the true vertical position, adjust to the maximum peak.

1. メンテナンス基板に付属されているヘッドアジマス基板に録音ヘッドのコネクタを接続します。

2. ヘッドアジマス基板のH端子をVTVMの \oplus 側に、4T端子をVTVMの \ominus 側に接続します。VTVMの端子にマイラーコンデンサ0.0022 μ Fを図のように入れる。

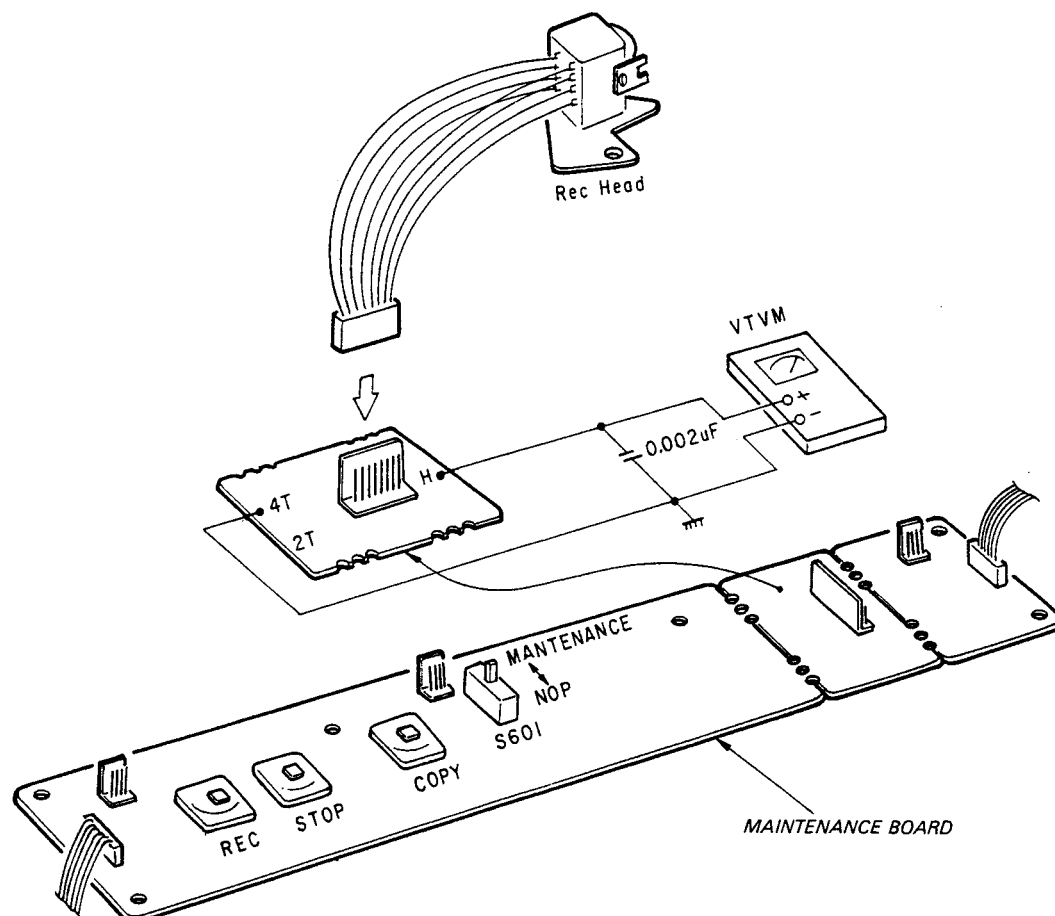
注) VTVMの \ominus GND側はシャーシへ接続する。

3. オーディオ基板のCNP1(Audio(S))をはずします。

4. テストテープ(P-4-A063)を再生しピーク点をさがします。(仮調整)

5. テストテープ(P-4-A100)を再生しピーク点をさがし垂直調整ねじをネジロックで固定します。

注) 正確な垂直位置の前後にもピークが出るので最大のピークに合せる。



5.4. ELECTRICAL ADJUSTMENT

Frequency Adjustment

Equipment required 10 mH Micro-Inductor
Frequency Counter

準備

10mHマイクロインダクタ
周波数カウンタ

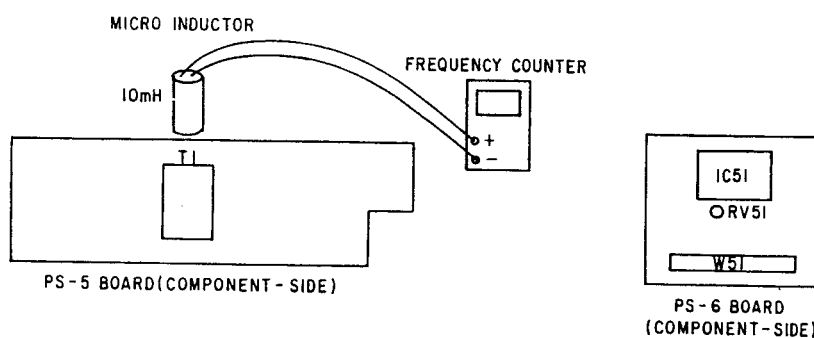
Procedure:

1. Connect the Micro-Inductor with Frequency Counter. Put the Micro-Inductor close to the T1 (Transformer).
2. Adjust RV51 so that frequency falls within specification.

1. マイクロインダクタを周波数カウンタに接続し、PS-5基板のT1(トランス)に接近させる。
2. 周波数が規格に入っているようRV51で調整する。

Specifications:

$120.0 \pm 0.5 \text{ kHz}$



Voltage Adjustment

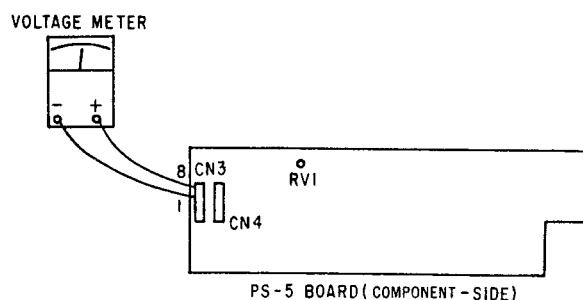
Procedure:

1. Connect the \ominus lead-wire of Voltage Meter with No. 6 terminal of CN3 on PS-5 board and the \oplus lead-wire of Voltage Meter with No. 8 terminal of CN3 on PS-5 board.
2. Adjust RV1 so that the DC voltage falls within the specification.

1. PS-5基板のCN3番端子に電圧計の \ominus リード線を、8番端子に \oplus リード線を接続する。
2. DC電圧が規格に入っているようにRV1で調整する。

Specifications:

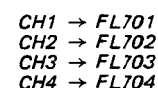
$-15.0 \pm 0.1 \text{ V}$



(For get rid of switching noise at Power circuit.)

- (SW電源のスイッチングノイズ除去用)

1. CCP-310, 314のラインアウトにVTVM, オシロスコープを接続する。
2. CCP-310の電源スイッチをON状態（メカはSTOP状態）にしてVTVMの電圧が最少になるようVOLUME基板のフィルターを調整する。



1. Connect the VTVM to Line out of the set.
2. Execute playback of the test tape (P-4-L300).
(315 Hz)
3. Adjust RV2, 5, 8 and 11 on the Audio (M) board so that the output falls within the specification.
4. Execute playback of the test tape (P-4-A063).
(6.3 kHz)
5. Adjust RV13, 14, 15 and 16 on the Audio (M) board so that the output falls within the specification.
6. Execute playback of the test tape (P-4-A100-2).
(10 kHz)
7. Adjust RV1, 4, 7 and 10 on the Audio (M) board so that the output falls within the specification.

1. VTVMをセットのラインアウトに接続する。
2. テストテープ(P-4-L300)を再生する。(315Hz)
3. 出力が規格に入るようAudio(M)基板上のRV2, 5, 8, 11を調整する。
4. テストテープ(P-4-A063)を再生する。(6.3kHz)
5. 出力が規格に入るようAudio(M)基板上のRV13, 14, 15, 16を調整する。
6. テストテープ(P-4-A100-2)を再生する。(10kHz)
7. 出力が規格に入るようAudio(M)基板上のRV1, 4, 7, 10を調整する。

P-4-L300 (315 Hz, 0 dB)
P-4-A063 (6.3 kHz, -10 dB)
P-4-A100 (10 kHz, -10 dB)

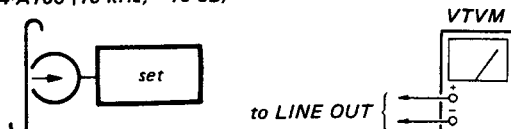


Diagram illustrating the assignment of chemical shifts (in Hz) for various carbon environments (A through I) in a 100-MHz 1D ^1H NMR spectrum of a 100% ^{13}C -enriched polymer. The spectrum shows peaks corresponding to different carbon environments, with chemical shifts ranging from approximately 315 Hz to 6.3 kHz.

Key assignments and chemical shifts (Hz) are indicated:

- RV7** (A): ~6.3 kHz
- RV10** (B): ~6.3 kHz
- RV4** (C): ~6.3 kHz
- RV1** (D): ~6.3 kHz
- RV2** (E): ~6.3 kHz
- CH1** (E): ~6.3 kHz
- 315 Hz** (E): ~315 Hz
- CH4** (F): ~6.3 kHz
- CH3** (G): ~6.3 kHz
- CH2** (G): ~6.3 kHz
- CH1** (H): ~6.3 kHz
- RV16** (I): ~6.3 kHz
- RV15** (I): ~6.3 kHz
- RV11** (A): ~6.3 kHz
- CH4** (A): ~6.3 kHz
- 315 Hz** (A): ~315 Hz
- RV8** (B): ~6.3 kHz
- CH3** (B): ~6.3 kHz
- 315 Hz** (B): ~315 Hz
- RV5** (C): ~6.3 kHz
- CH2** (C): ~6.3 kHz
- 315 Hz** (C): ~315 Hz
- RV14** (D): ~6.3 kHz
- CH2** (D): ~6.3 kHz
- RV13** (E): ~6.3 kHz

A scale bar indicates 10 kHz.

Reference output level 0 dB \pm 1 dB (315 Hz)

Bias Frequency Adjustment

Setting:

Output Record Head Terminal
 Mode COPY
 SIDE SELECT SW A + B

Procedure:

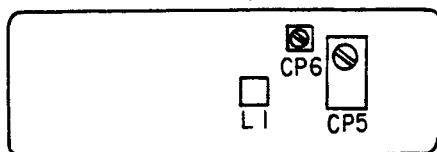
Adjust CP so that the frequency becomes 480 kHz.

周波数が480kHzになるようCPを調整する。

Specifications:

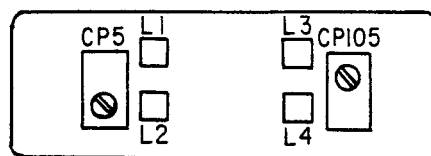
480 kHz \pm 5%

Audio Board (M) — component side —



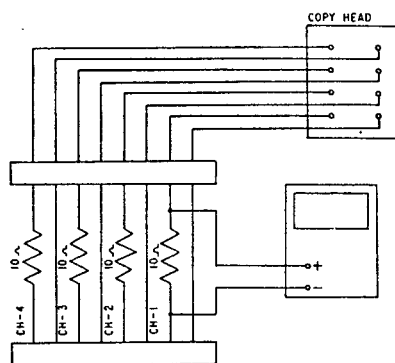
CCP-310 COPY1

Audio Board (S) — component Side —



CCP-310 COPY2
 CCP-314 COPY1, 3

CCP-310 COPY3
 CCP-314 COPY2, 4



Bias Trap Adjustment

Setting:

Mode COPY
 SIDE SELECT SW A + B

Adjust CP so that the output becomes a maximum.

出力が最大になるようにCPを調整します。

CCP-310 COPY1

Audio Board (M)

- CH-1 Trap CP1
- CH-2 Trap CP2
- CH-3 Trap CP3
- CH-4 Trap CP4

CCP-310, COPY2 or CCP-314 COPY1 and COPY3.

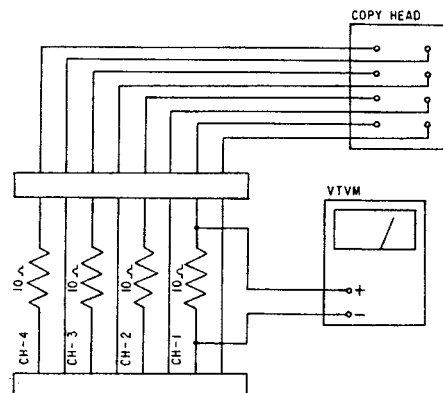
Audio Board (S)

- CH-1 Trap CP1
- CH-2 Trap CP2
- CH-3 Trap CP3
- CH-4 Trap CP4

CCP-310 COPY3 or CCP-314 COPY2 and COPY3.

Audio Board (S)

- CH-1 Trap CP101
- CH-2 Trap CP102
- CH-3 Trap CP103
- CH-4 Trap CP104



Note:

- The bias frequency should be adjusted before this adjustment.

- この調整の前に、バイアス周波数が調整されていること。

Bias Adjustment

Setting:

Mode COPY
SIDE SELECT SW A + B

1. Adjust the bias current of every channel by RV on the Bias 1 - 4 Board as the following.

CH-1, 4 2.0 mA

CH-2, 3 2.2 mA

CCP-310 COPY1

Audio Board (M)

CH-1 Bias 4 Board RV1
(Audio Board (M) CT1)

CH-2 Bias 3 Board RV1

CH-3 Bias 3 Board RV2

CH-4 Bias 4 Board RV1
(Audio Board (M) CT4)

CCP-310 COPY2, CCP-314 COPY1 and COPY3

CH-1 Bias 1 Board RV1

CH-2 Bias 1 Board RV2

CH-3 Bias 1 Board RV3

CH-4 Bias 1 Board RV4

CCP-310 COPY3, CCP-314 COPY2 and COPY4

CH-1 Bias 2 Board RV5

CH-2 Bias 2 Board RV6

CH-3 Bias 2 Board RV7

CH-4 Bias 2 Board RV8

2. Disconnect the CNP2 (CCP-310), CNP3 (CCP-314) on the Audio (S) Board.

3. Apply the signal (2.5 kHz, 0 dB) to the pin and record the signal on a blank tape.

4. Playback the recorded portion with a standard playback unit.

5. Measure the harmonic distortion.

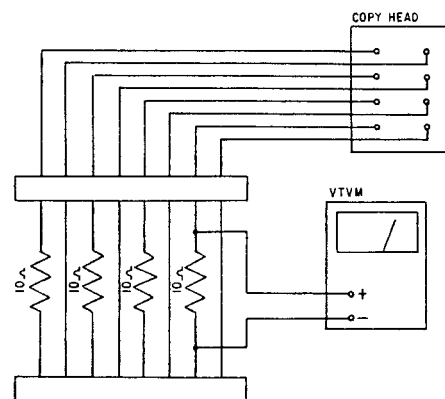
Specifications within 2%

6. Unless an output falls within the specification add the Bias current 0.2 mA and measure the harmonic distortion again.

Note:

- Clean and demagnetize the Head.

1. バイアス 1 ~ 4 を次のように調整することにより、各チャンネルのバイアス電流を調整します。



2. Audio(S)基板のCNP2(CCP-310)とCNP3(CCP-314)の接続をはずします。

3. 2.5kHz, 0dBの信号をそのピンより入力し、生テープに録音します。

4. 録音したテープを標準再生機で再生します。

5. 歪率を測定します。

規格 2%以下

6. 規格に入らない場合はバイアス電流を0.2mA増し、再度歪率を測定します。

- ヘッド消磁、クリーニングを行なうこと。

Setting:

Mode COPY

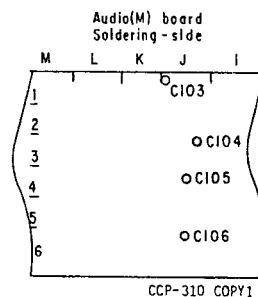
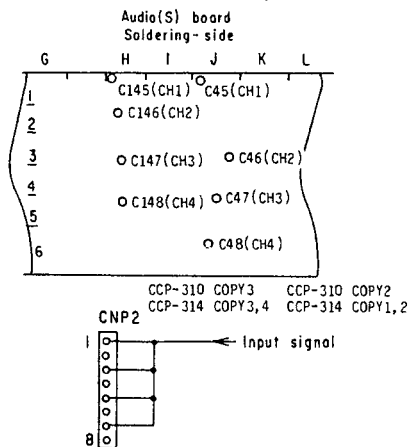
SIDE SELECT SW A + B

1. Disconnect the CNP2 on the Audio (S) board.
2. Apply the signal (2.5 kHz, 80 kHz -20 dB) to the 1, 3, 5 and 7 pin of CNP2 and record this signal.
3. Connect the VTVM to Line out of a standard playback unit and playback the recorded portion with a standard playback unit.
4. Change the C103 - 106 on the Audio (M) board and the C45 - 48, C145 - 149 on the Audio (S) board so that the 10 kHz (80 kHz) output level is ± 2 dB per 315 Hz output level.

Note: These capacitors are mounted on the soldering side.

1. Audio(S)基板上のCNP2をはずす。
2. 2.5kHz, 80kHz -20dBの信号をCNP2の1, 3, 5, 7ピンに入力し録音します。
3. VTVMを標準再生機のラインアウトへ接続し、録音したテープを標準再生機で再生する。
4. 10kHzの出力レベルが315Hz(2.5kHz)に対して ± 2 dBになるようAudio(M)基板上のC103~106を又Audio(S)基板上のC45~48, C145~148を交換して調整します。

注) このコンデンサは裏付部品です。



to 0.0012 μ F	
0.0018 μ F	2 - 3 dB up
0.0027 μ F	4 - 5 dB up
0.00056 μ F	1 - 2 dB down
NOT	4 - 5 dB down

Record Level Adjustment and Record Frequency Response Confirmation

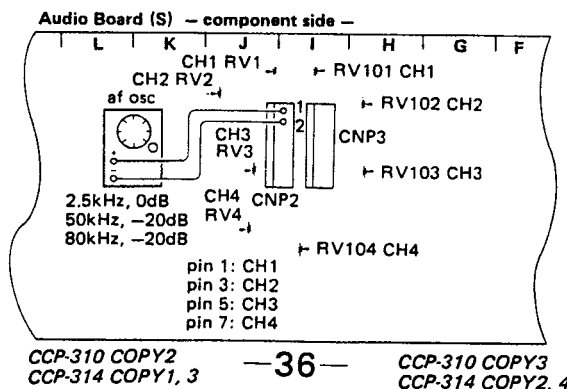
Setting:

SIDE SELECT SW A + B

Procedure:

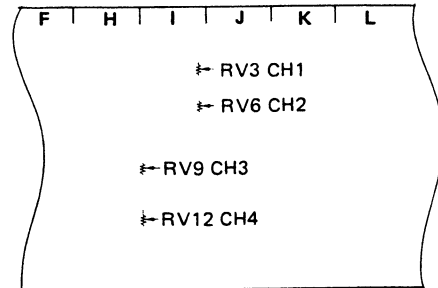
1. Disconnect the CNP2 (CCP-310) and CNP3 (CCP-314) on the Audio (S) board.
2. Apply the signal (2.5 kHz, 0 dB) to the 1, 3, 5 and 7 pin and record the signal on the blank tape.
3. Connect the VTVM to Line out of a standard playback unit and playback the recorded portion with a standard playback unit.
4. Unless 315 Hz output falls within the specification, make adjustment by turning RV1 - 4, RV101 - 104 on the Audio (S) board and RV3, 6, 9, and 12 on the Audio (M) board.
5. Confirm Frequency Response and Distortion.

1. Audio(S)基板上のCNP2(CCP-310), CNP3(CCP-314)をはずす。
2. 1, 3, 5, 7ピンより信号(2.5kHz, 0dB)を入力し未収録テープに録音する。
3. VTVMを標準再生機のラインアウトに接続し、録音したテープを標準再生機で再生する。
4. 315Hzの出力が規格に入らない場合は、Audio(S)基板上のRV1~4, RV101~104そしてAudio(M)基板上のRV3, 6, 9, 12を回して調整する。
5. 再度、周波数特性、歪率を測定する。



SECTION 6 SEMICONDUCTORS

Audio Board (M) — component side —

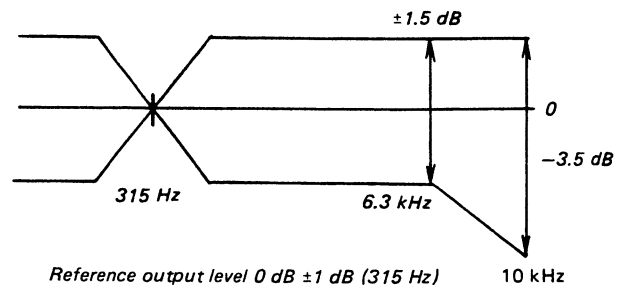


CCP-310 COPY1

Note:

1. Turning RV clockwise raises the output level.
2. Unless an output falls within the specification, readjust the bias.

Specifications:



Reference output level 0 dB \pm 1 dB (315 Hz)

1. RV は時計方向に回すと出力レベルが上る。
2. 出力が規格に入らない場合は、バイアス調整からやり直す。

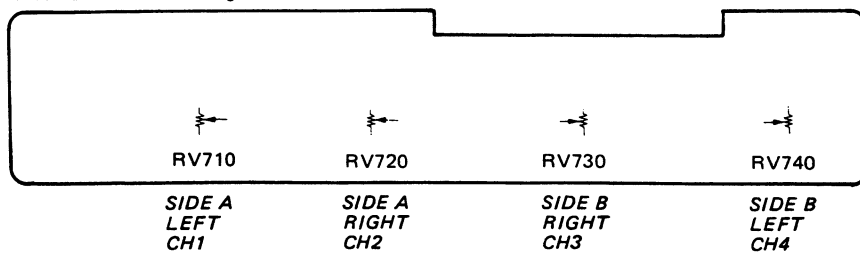
Level Meter Adjustment

Setting:

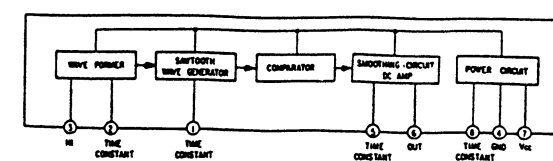
SIDE SELECT SW A + B

1. Set the REC LEVEL control at 0 dB position.
 2. Excute playback (COPY mode) of the test tape (P-4-L300) at ORIGINAL unit.
 3. Adjust RV so that the LED of level meter lights at 0 dB.
1. REC LEVELつまみを0dBの位置にする。
 2. ORIGINAL機にテストテープ(P-4-L300)を入れ再生(COPY状態)する。
 3. レベルメーターの0dBのLEDまでが点灯するようにRVを調整する。

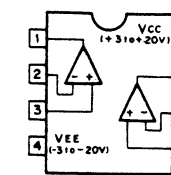
Meter Board — soldering side —



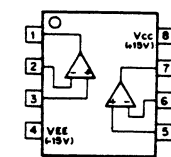
CX065B (MITSUBISHI)
SERVO AMPLIFIER



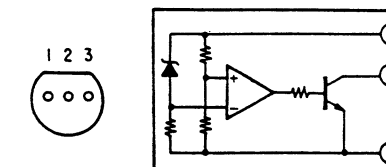
NE5532P (TI)
LOW NOISE OPERATIONAL AMPLIFIER
— TOP VIEW —



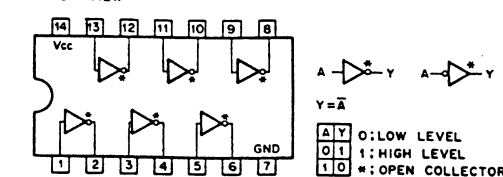
NJM2043D-D (JRC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



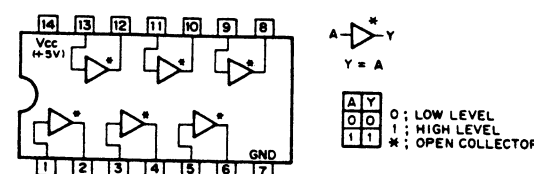
PST520 (MITSUMI)
4.5V SYSTEM RESET IC
— BOTTOM VIEW —



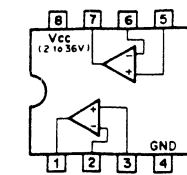
SN74LS05N (TI)
TTL INVERTER WITH OPEN-COLLECTOR.
— TOP VIEW —



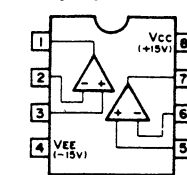
SN7407N (TI)
TTL BUFFER/DRIVER WITH OPEN-COLLECTOR
— TOP VIEW —



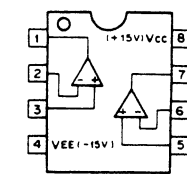
μ PC393C (NEC)
VOLTAGE COMPARATOR
— TOP VIEW —



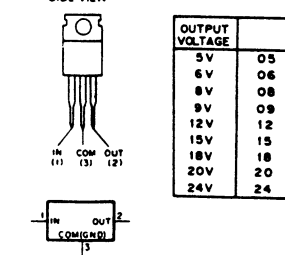
μ PC4556C (NEC)
OPERATIONAL AMPLIFIER
(WIDE BAND, DECOMPENSATED)
— TOP VIEW —



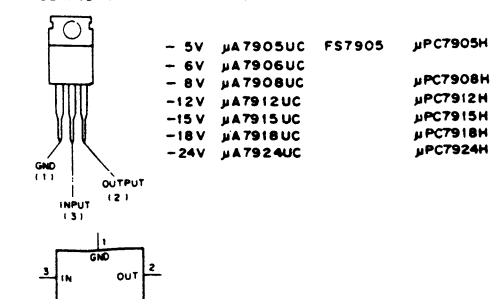
μ PC4558C (NEC)
OPERATIONAL AMPLIFIER
— TOP VIEW —



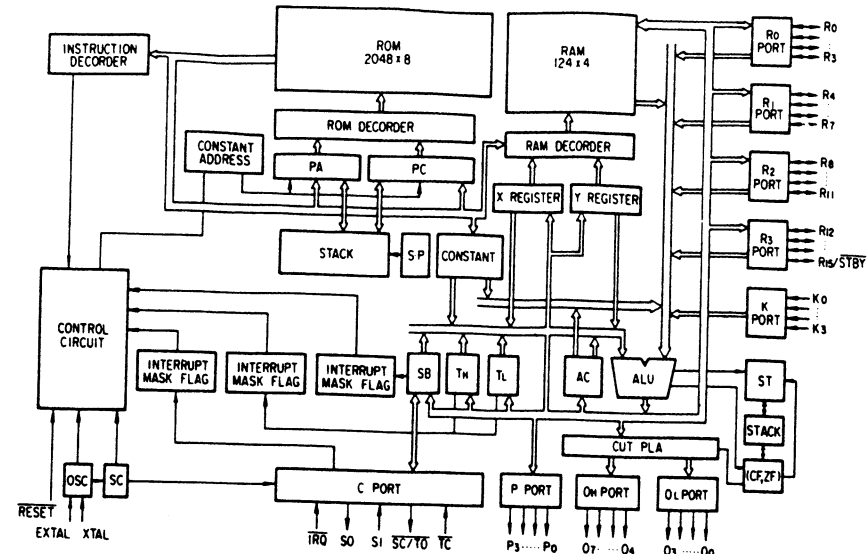
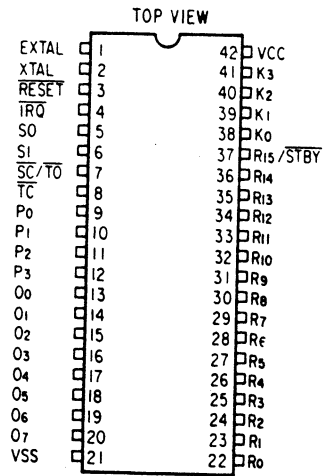
μ PC7805H (NEC)
 μ PC7815H (NEC)
POSITIVE VOLTAGE REGULATOR (1A)
— SIDE VIEW —



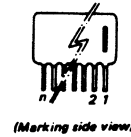
μ PC7915H (NEC)
NEGATIVE VOLTAGE REGULATOR (1A)



MB8851 (FUJITSU)
1 CHIP 4 BIT MICROCOMPUTER



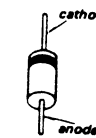
BX1221



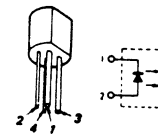
2SC1623-L7
DTA124XK



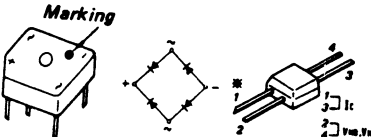
1SS119
1SS106



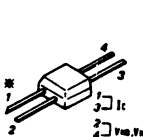
NJL5141E



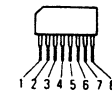
S2VB20



THS102A



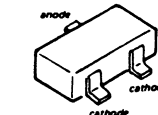
CX065B



2SA952
2SC3070



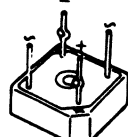
1S2835



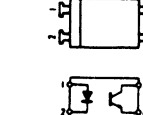
RD24M-B1



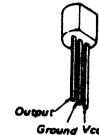
S5VB20



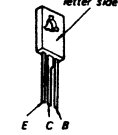
TLP521-1



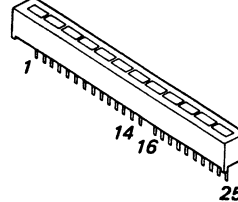
PST520



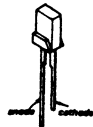
2SD894



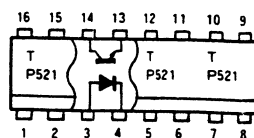
GL112F13



SEL1121R
SEL1321G



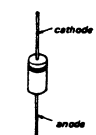
TLP521-4



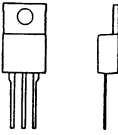
2SB808
2SC2603
2SD1012
DTA114ES
DTA124ES
DTC114ES



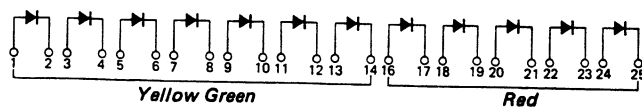
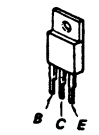
11ES2
ERA15



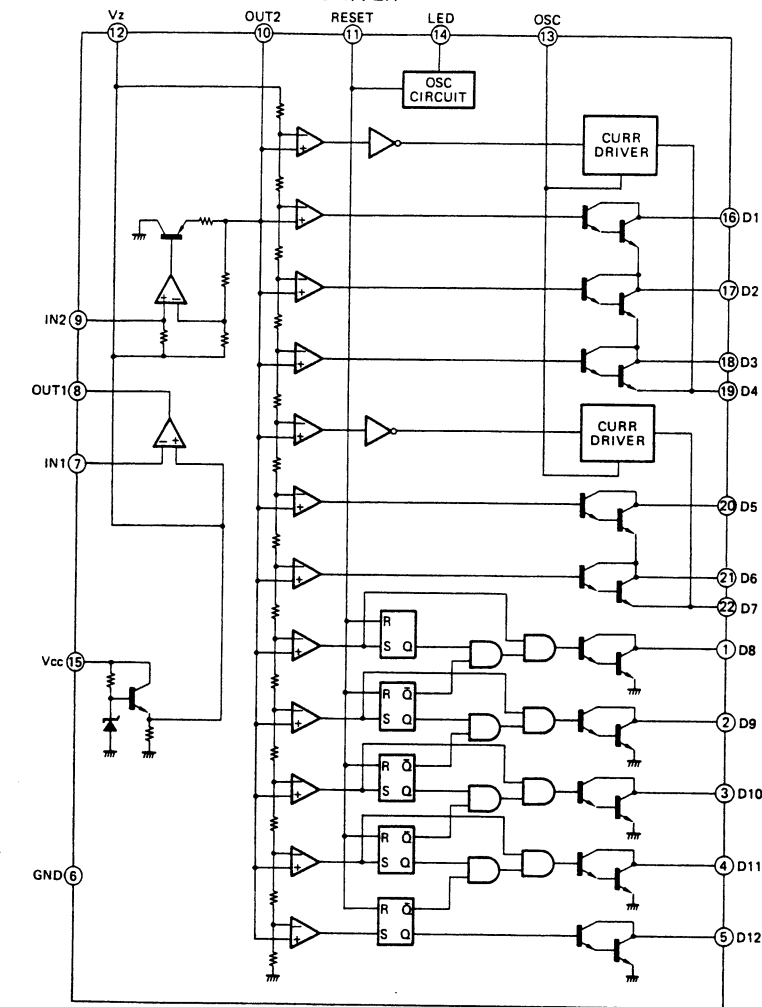
2SK792



2SB834
2SD880



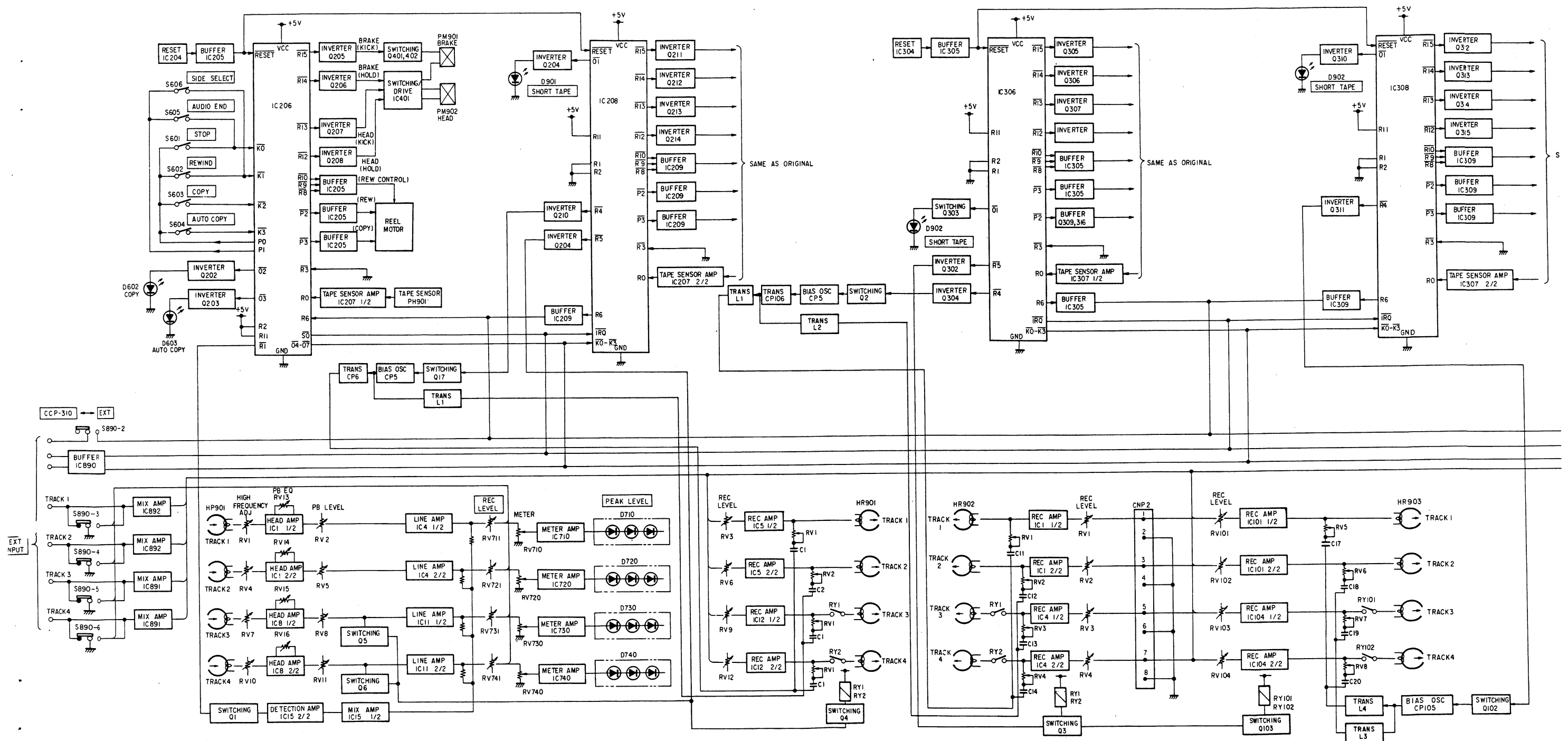
LB1412 (SANYO)
LED 12 POINT LEVEL METER DRIVER

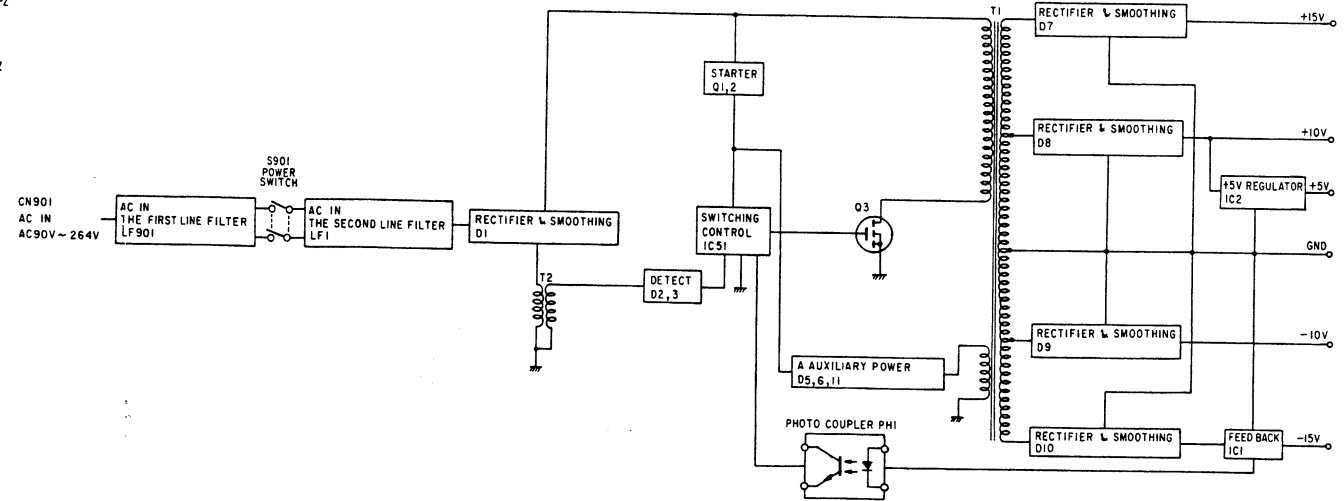
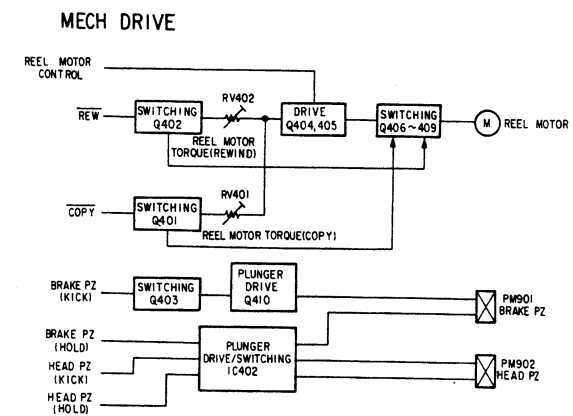
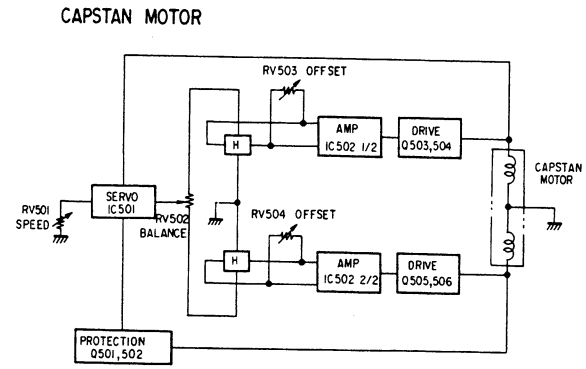
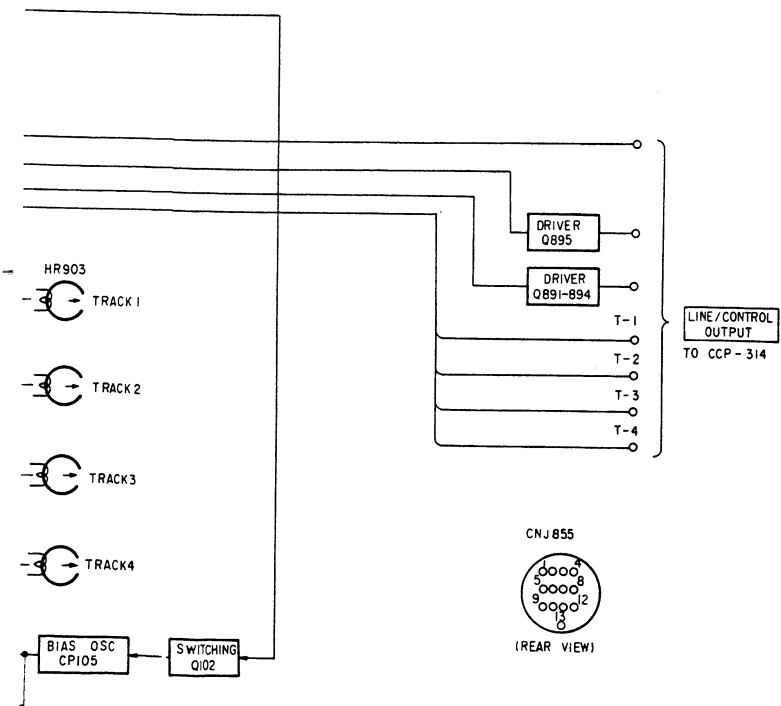
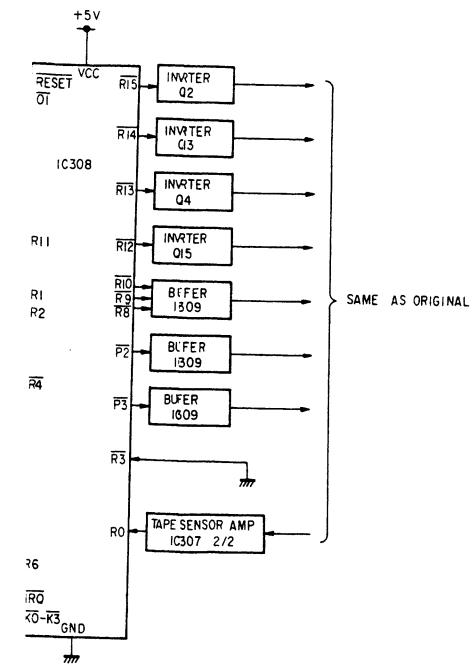


SECTION 7

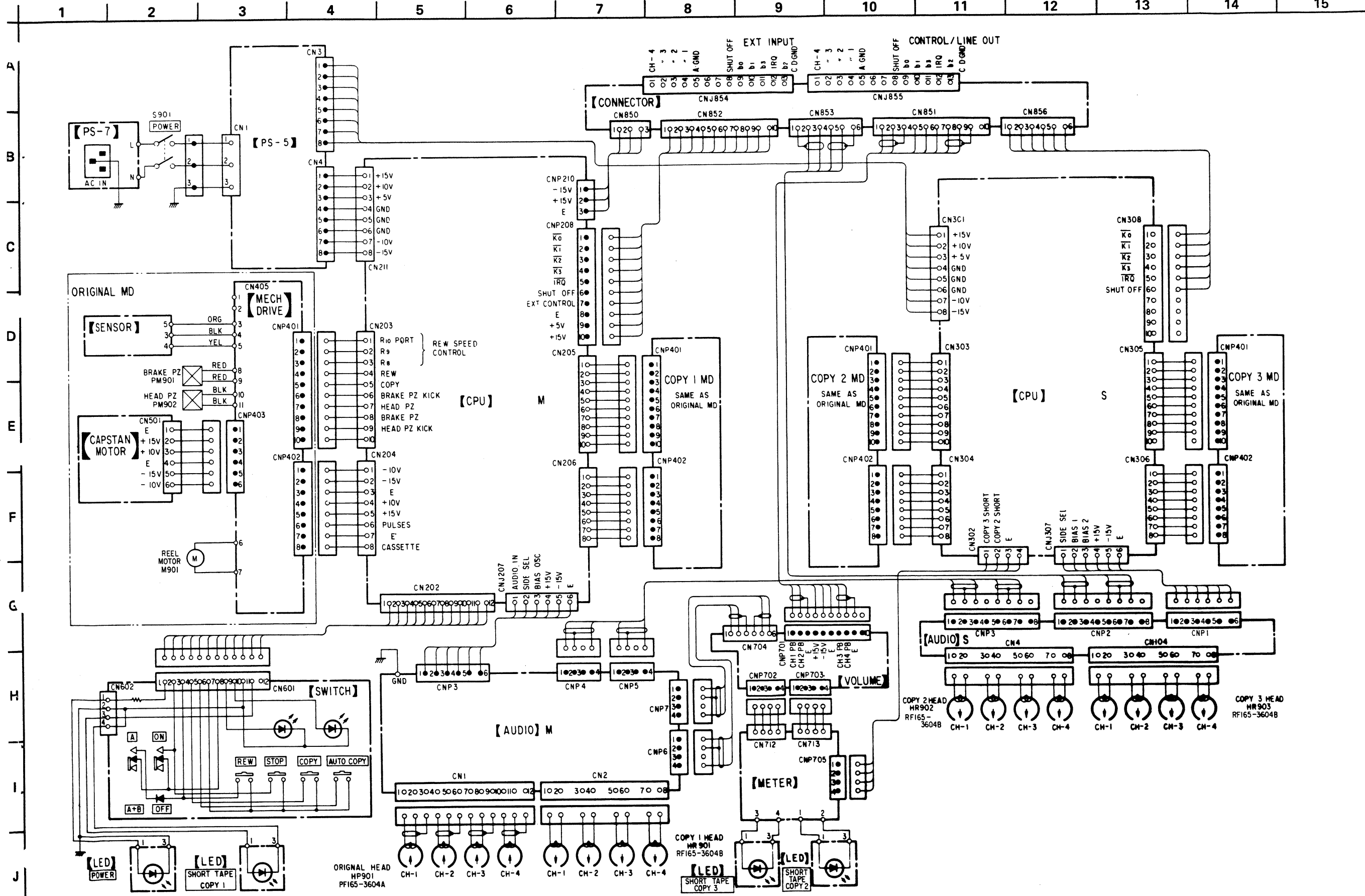
CCP-310 DIAGRAMS AND PARTS LIST

7-1. BLOCK DIAGRAM



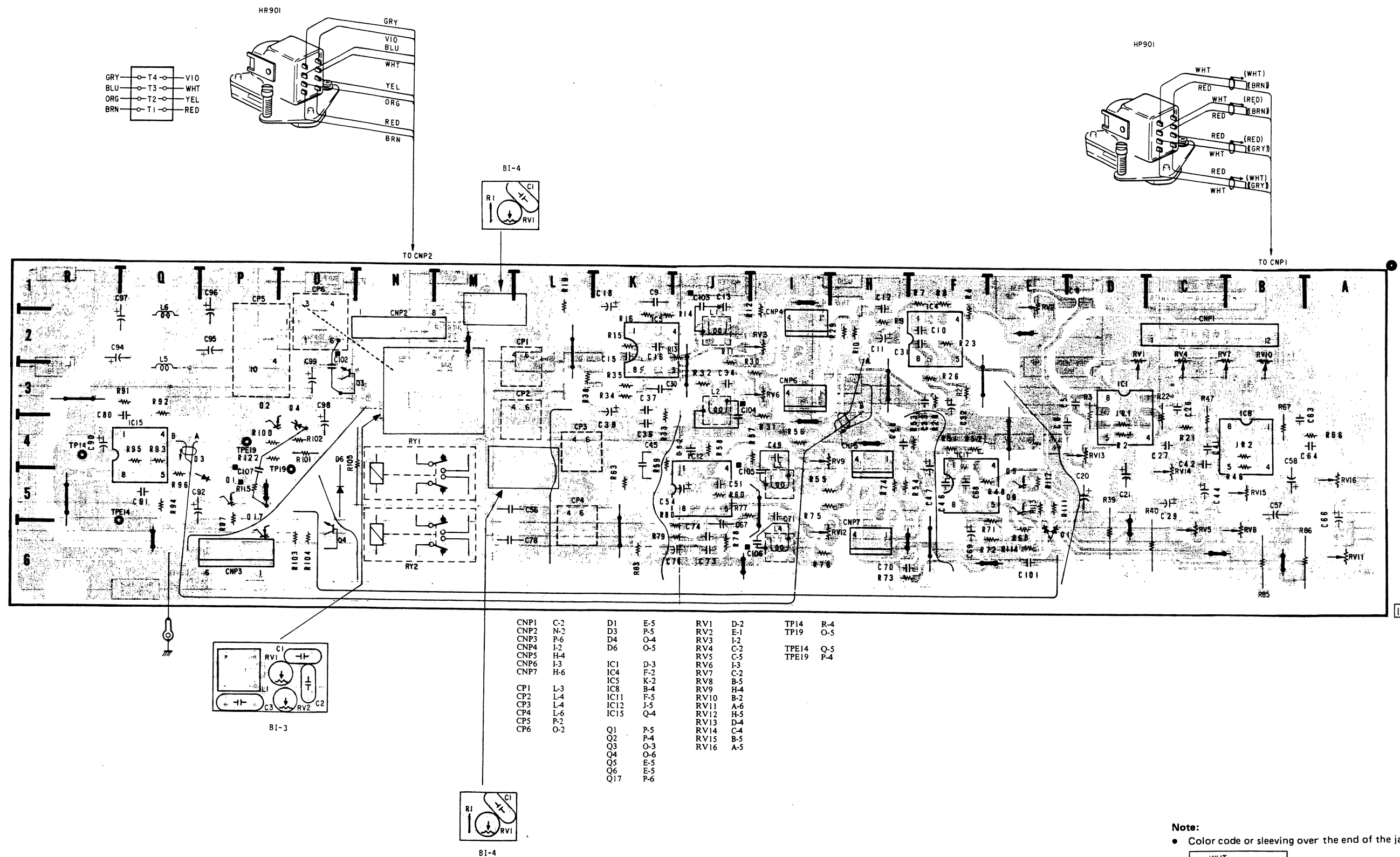


CCP-310 CCP-310

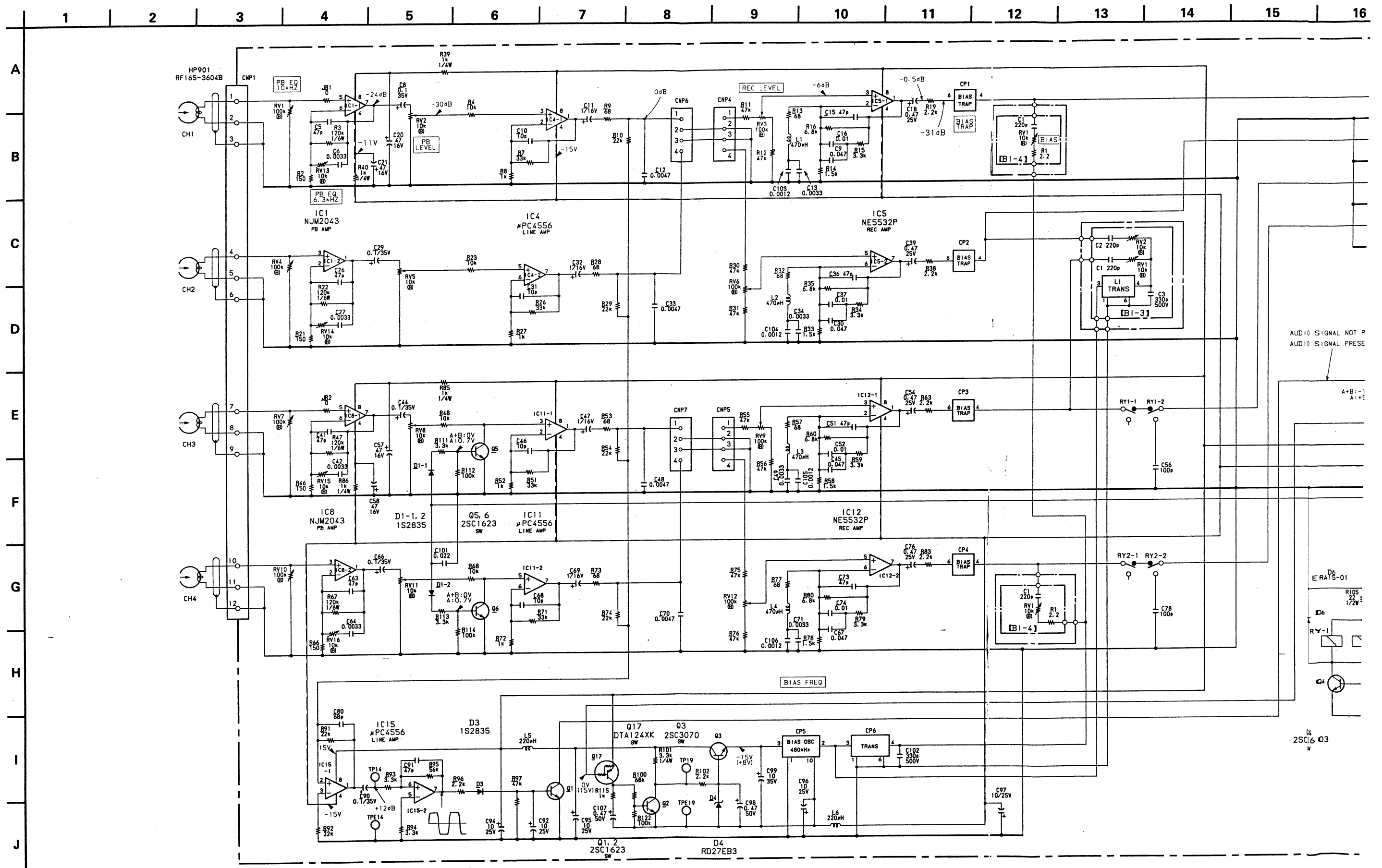


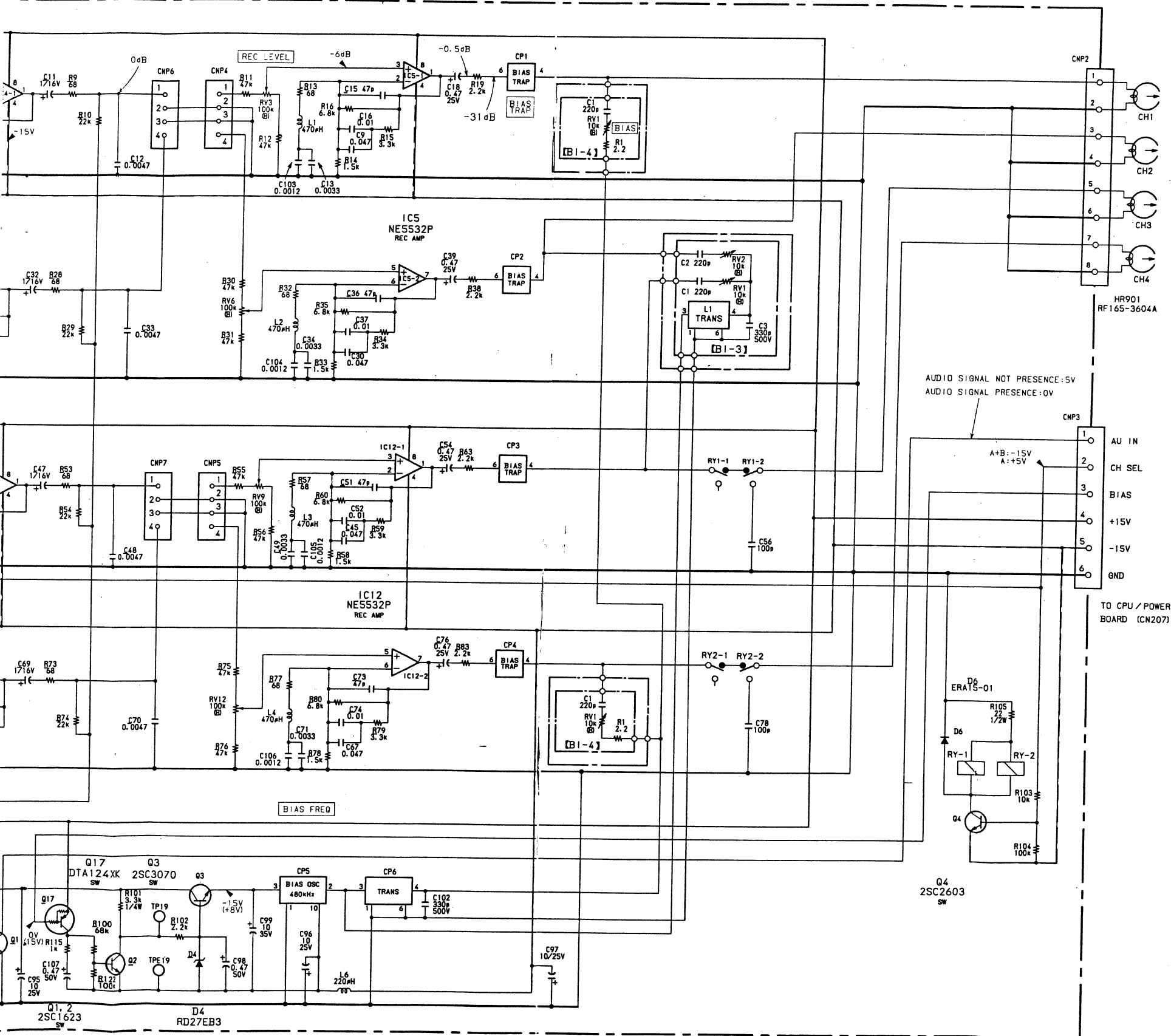
CCP-310 CCP-310

7-3. AUDIO BOARD (M) — Soldering Side —



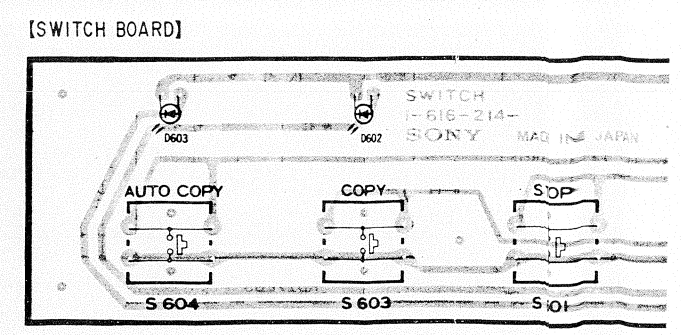
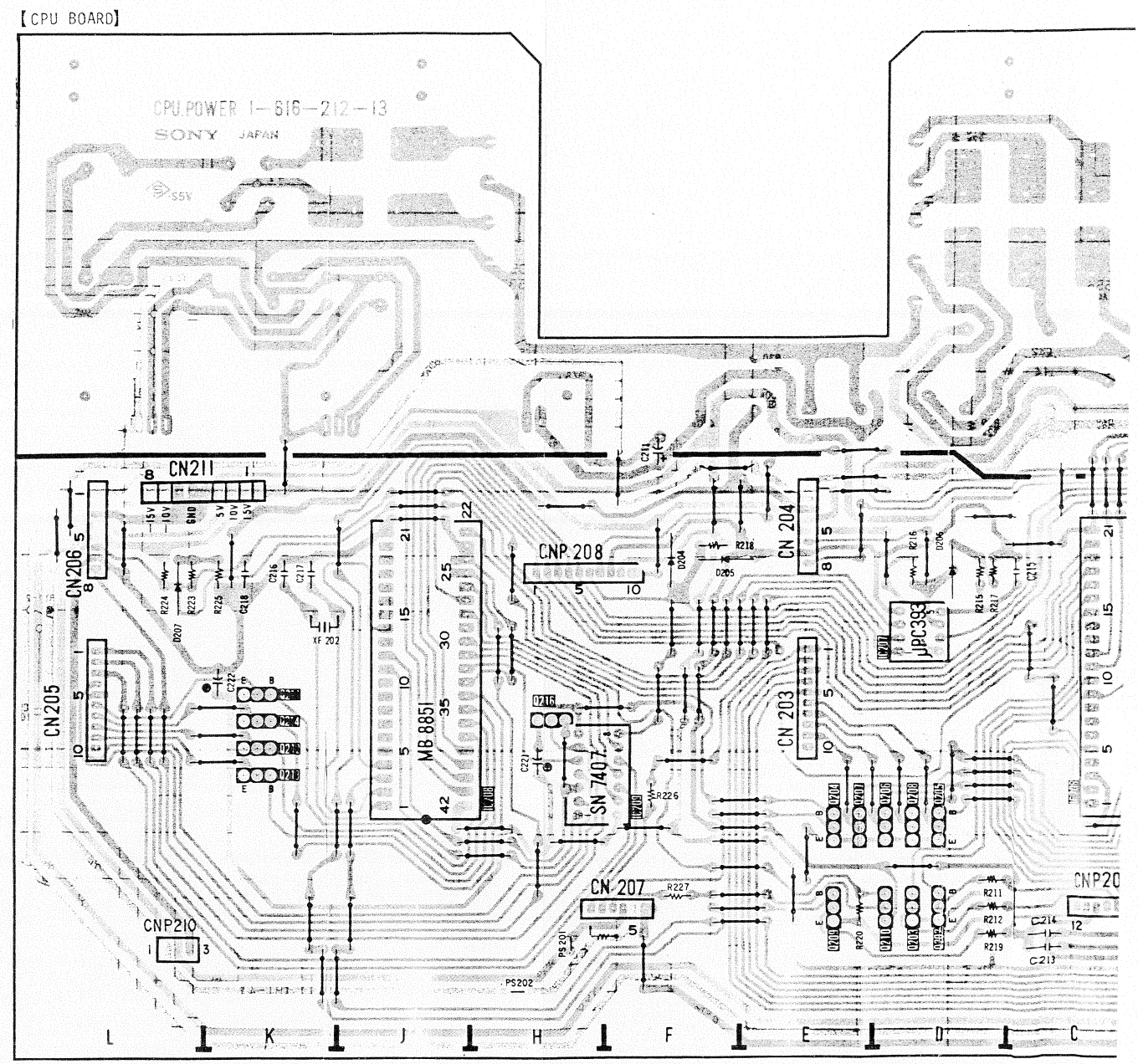
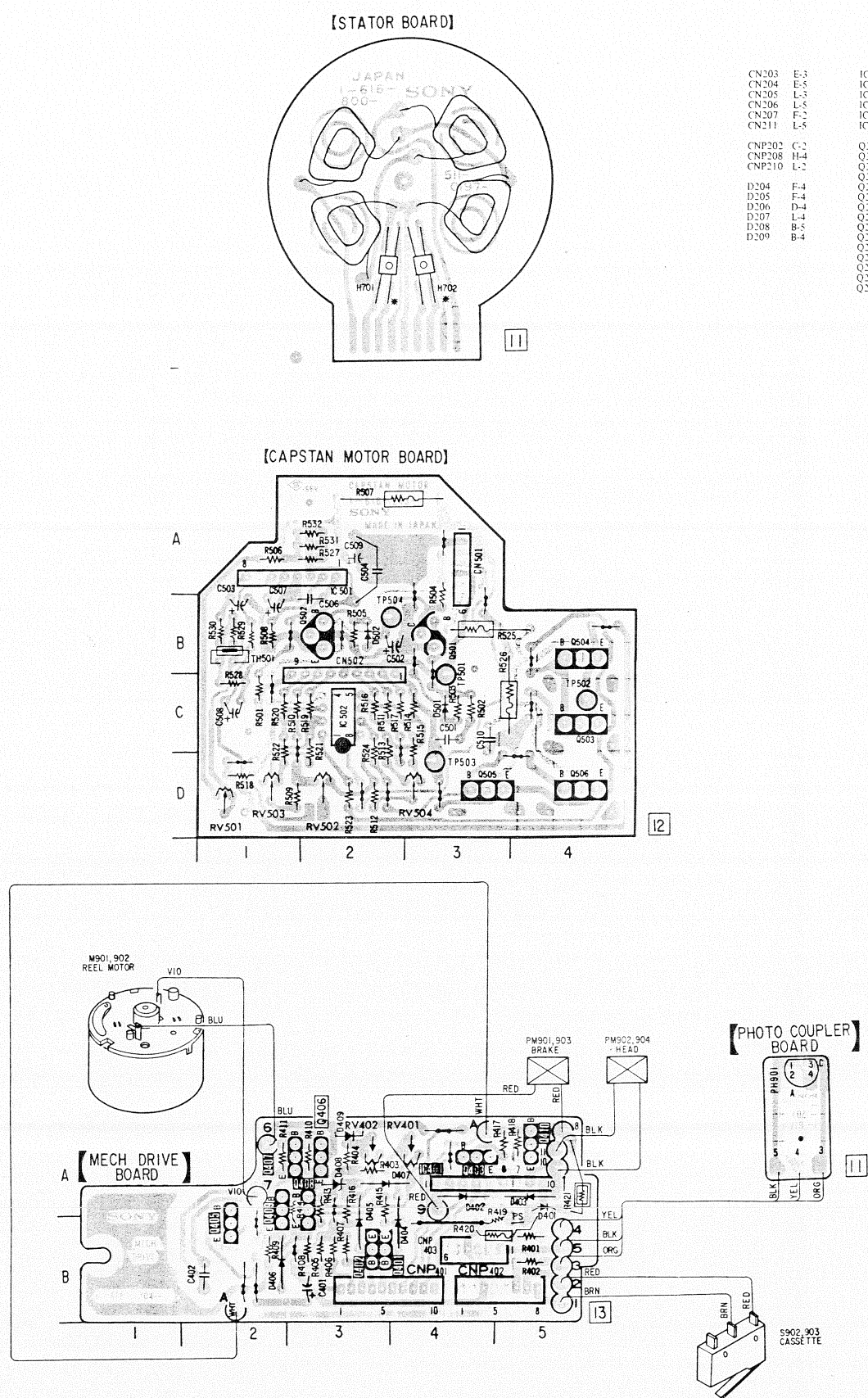
CCP-310 CCP-310



**Note:**

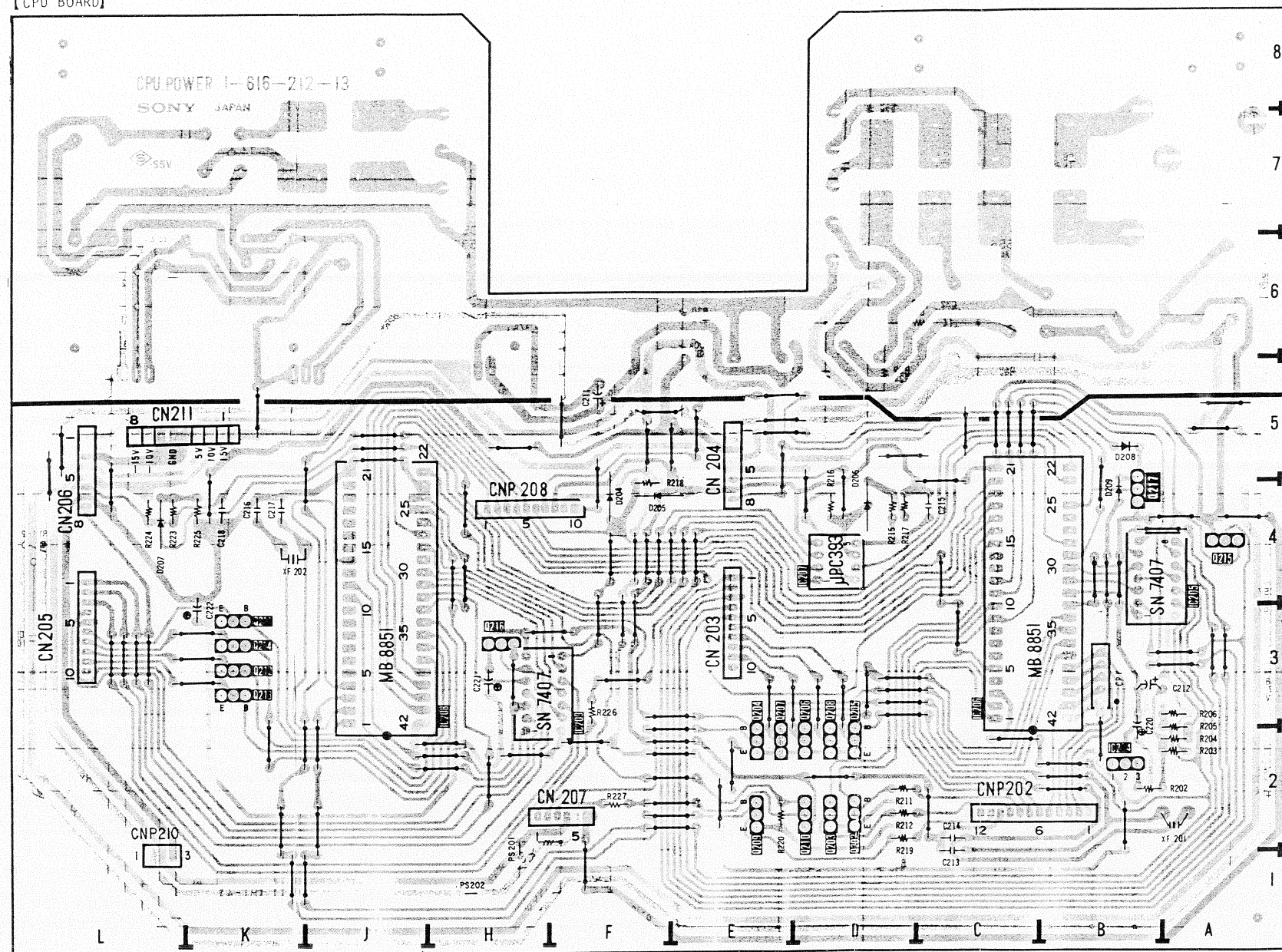
- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{10}\text{W}$ or less unless otherwise specified.
- : fusible resistor.
- An underlined reference symbol denotes a tip component.
- : B+ bus.
- : B- bus.
- : adjustment for repair.
- Readings are taken under no-signal (detuned) conditions with a digital voltmeter (10 M Ω) is stop mode.
- () : COPY mode
- dB value is obtained when a playback of the test tape (P-4-L300) is performed.

4. CPU (M), MECH-MOTOR (CAPSTAN) DRIVE, SWITCH BOARD — Soldering Side —



CCP-310 CCP-310

[CPU BOARD]

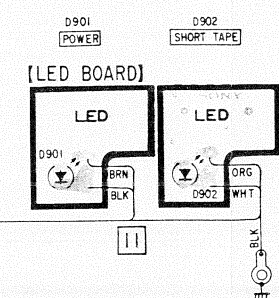
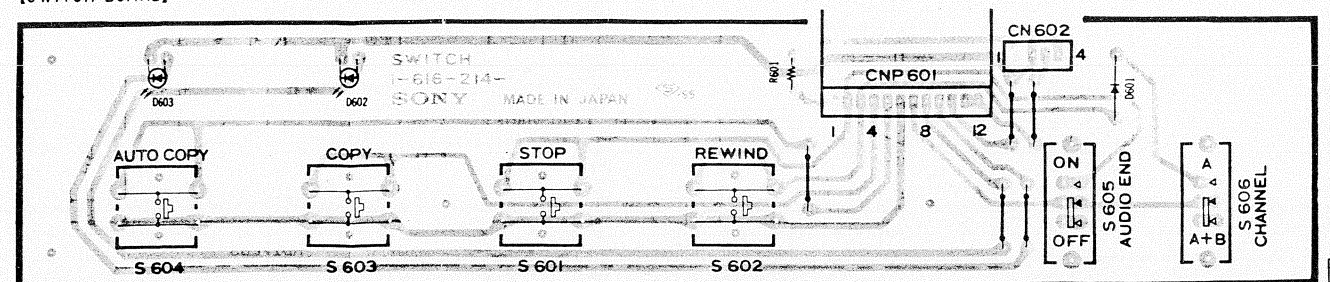


CN203	E-2	IC204	B-2
CN204	E-3	IC205	B-4
CN205	E-3	IC206	C-3
CN206	E-3	IC207	D-4
CN207	E-3	IC208	J-3
CN211	E-3	IC209	H-3
CNP202	C-2	Q202	D-2
CNP208	H-4	Q203	D-2
CNP210	E-3	Q204	E-2
		Q205	D-2
D104	F-4	Q207	D-2
D105	F-4	Q208	D-2
D106	F-4	Q209	E-2
D107	F-4	Q210	D-2
D108	B-3	Q211	K-3
D109	A-4	Q212	K-3
		Q213	K-3
		Q214	K-3
		Q215	A-4
		Q216	H-3
		Q217	A-4

[PHOTO COUPLER BOARD]

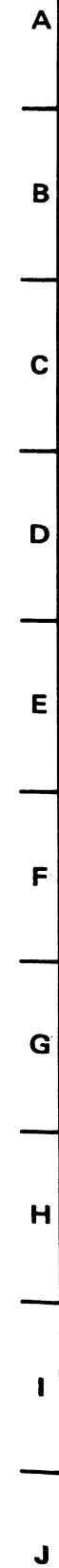



[SWITCH BOARD]



Note:
• : B+ pattern.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----



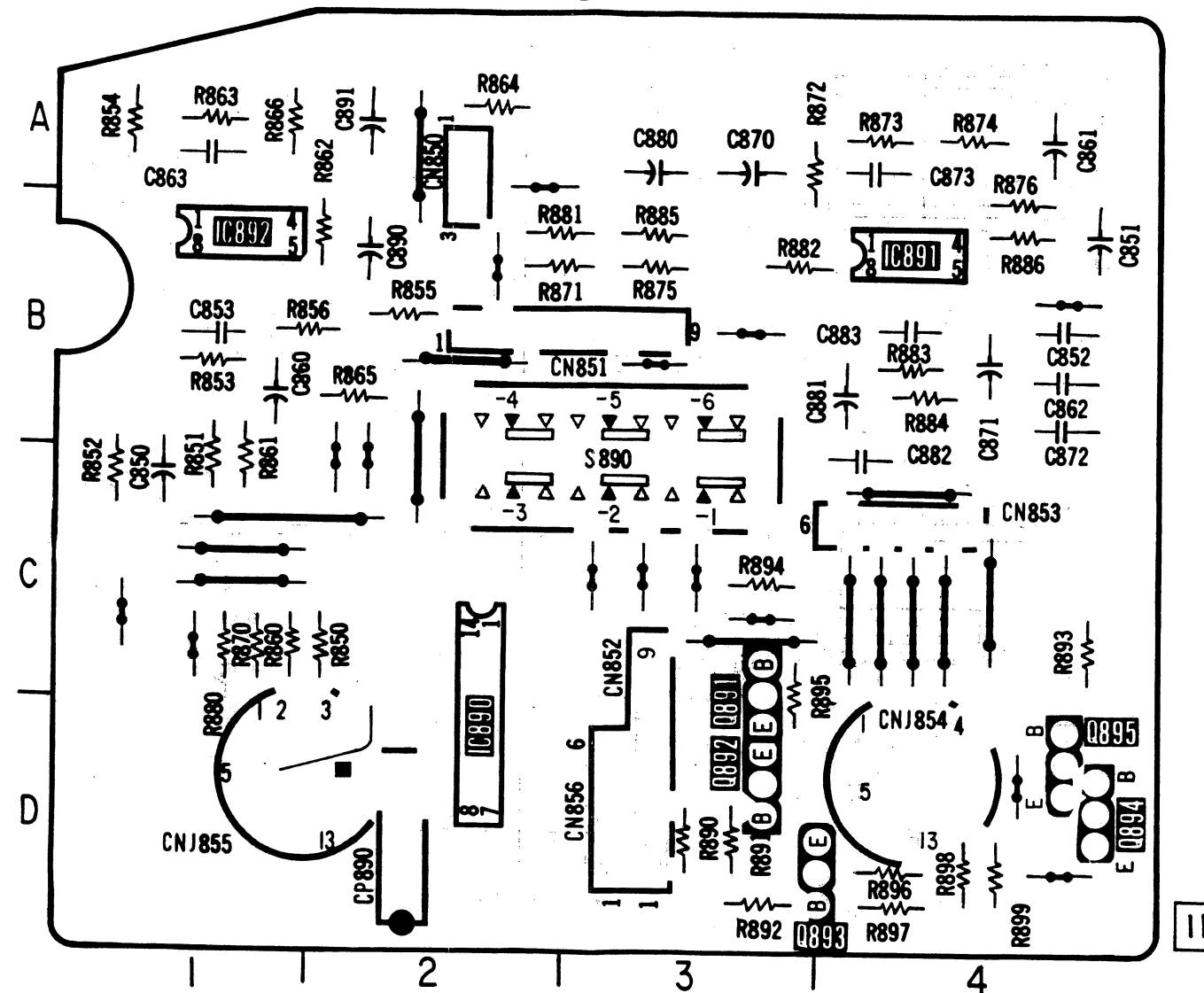
-  : B+ bus.
- : B- bus.
- : adjustment for repair.

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

7-5. DIGITAL CONNECTOR BOARD — Soldering Side —

【DIGITAL CONNECTOR BOARD】

- | | |
|--------|-----|
| CN850 | A-2 |
| CN851 | B-3 |
| CN852 | D-3 |
| CN853 | C-4 |
| CN856 | D-3 |
| CNJ854 | D-4 |
| CNJ855 | D-1 |
| IC890 | D-2 |
| IC891 | B-4 |
| IC892 | B-1 |
| Q891 | C-3 |
| Q892 | D-3 |
| Q893 | D-3 |
| Q894 | D-4 |
| Q895 | D-4 |
| S890 | C-3 |

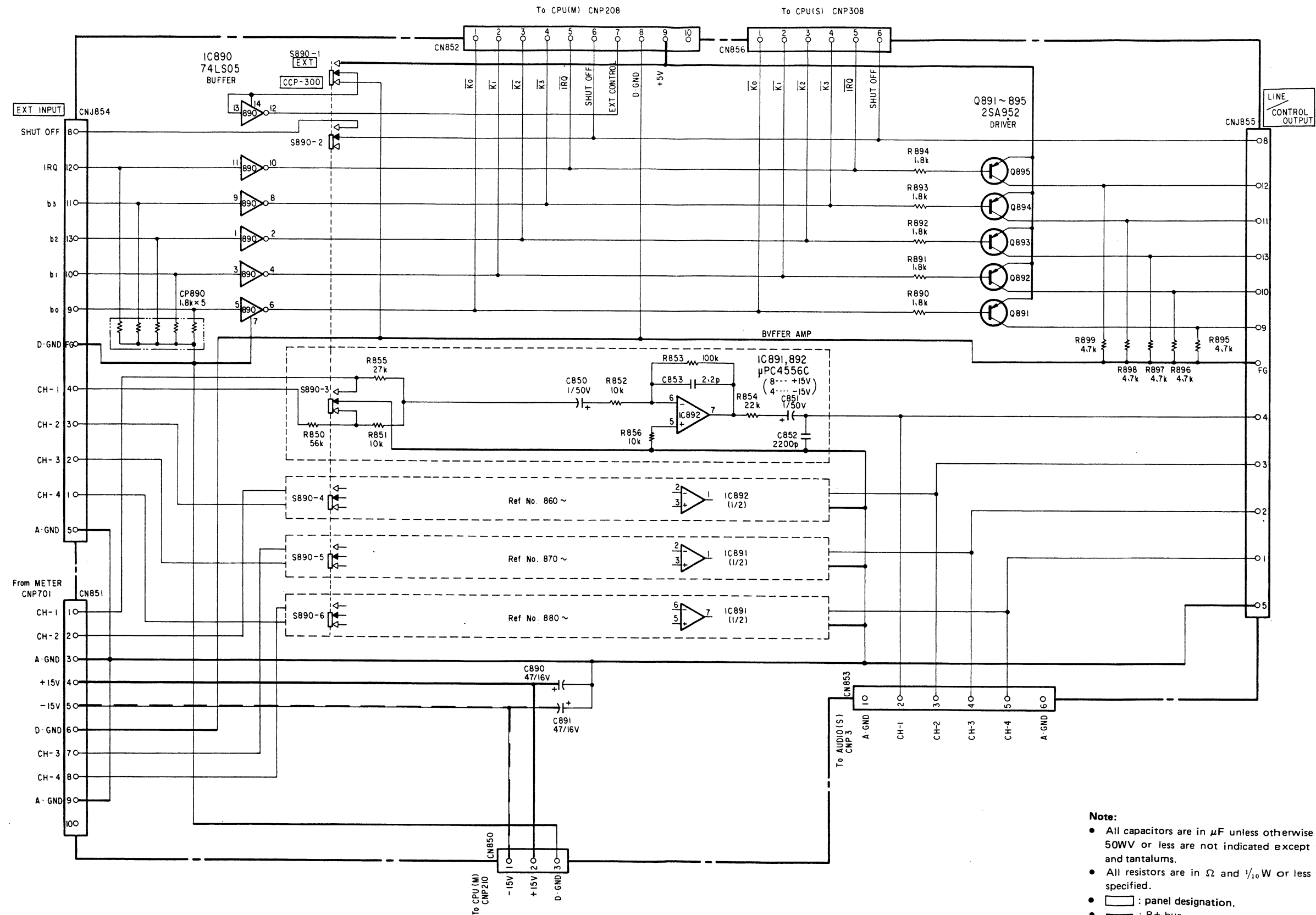


Note:

• : B+ pattern.

■ : part mounted on the soldering side.

CCP-310 CCP-310

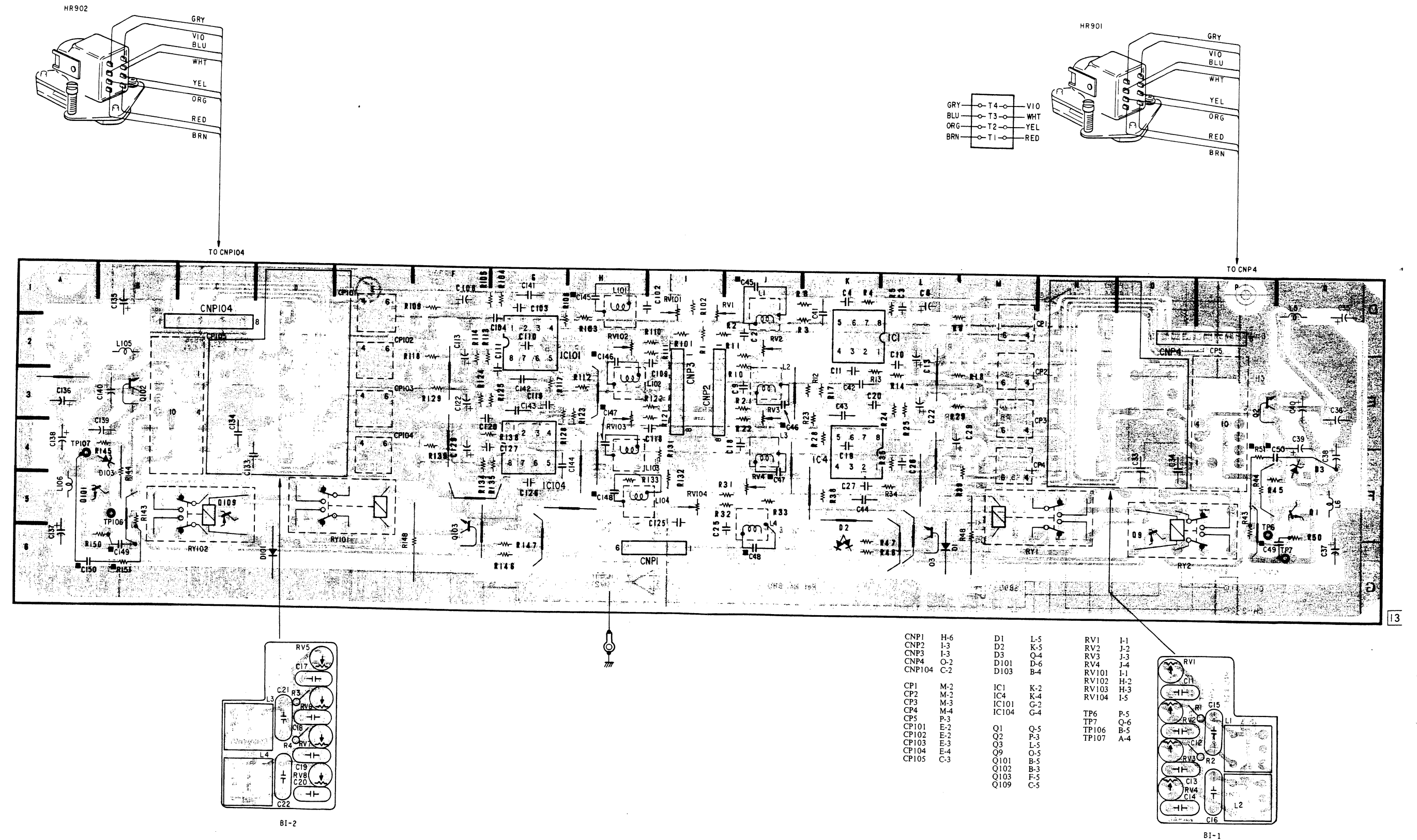


Note:

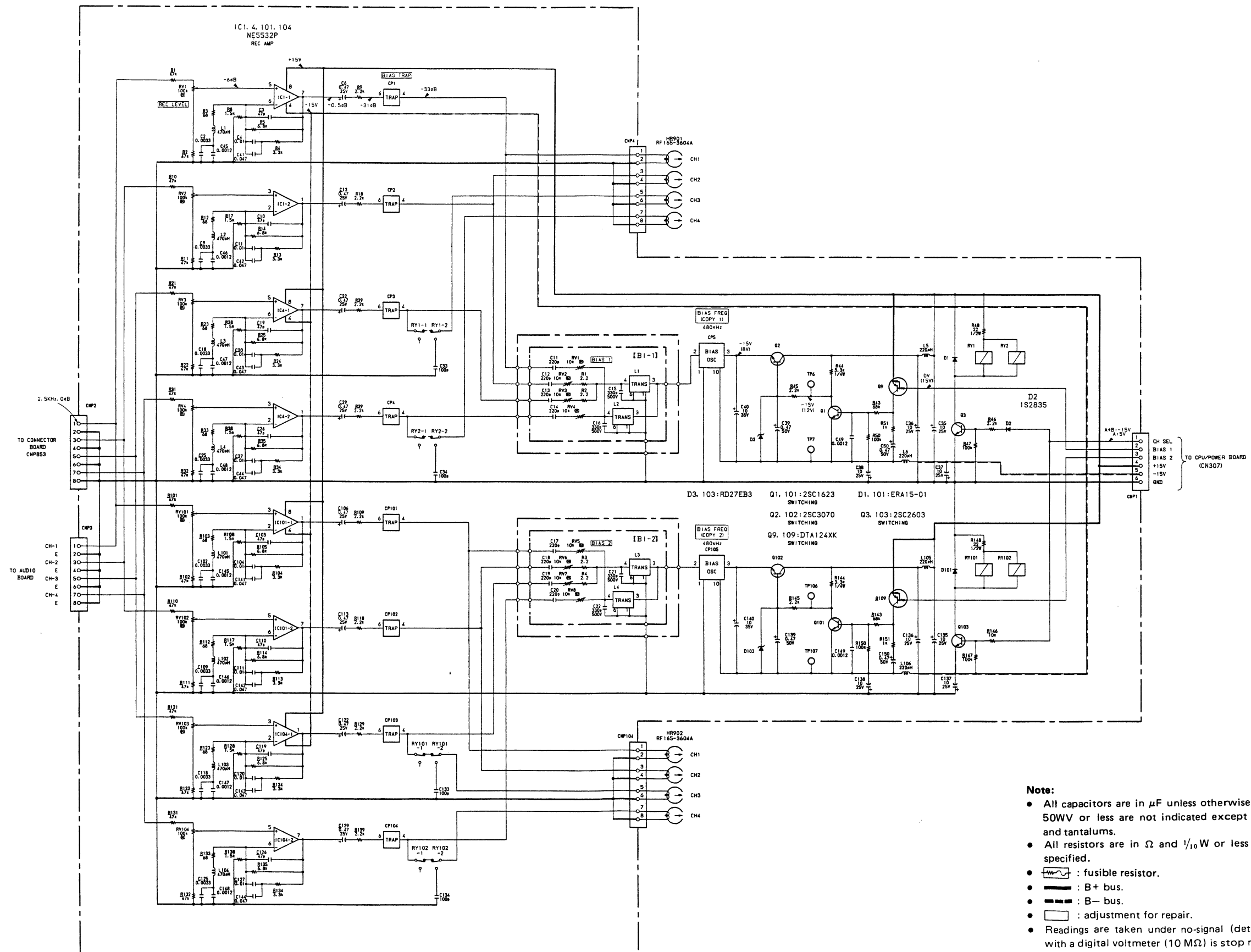
- All capacitors are in μ F unless otherwise noted. pF: μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/10$ W or less unless otherwise specified.
- : panel designation.
- : B+ bus.
- : B- bus.

CCP-310 CCP-310

7-6. AUDIO BOARD (S) — Soldering Side —



CCP-310 CCP-310

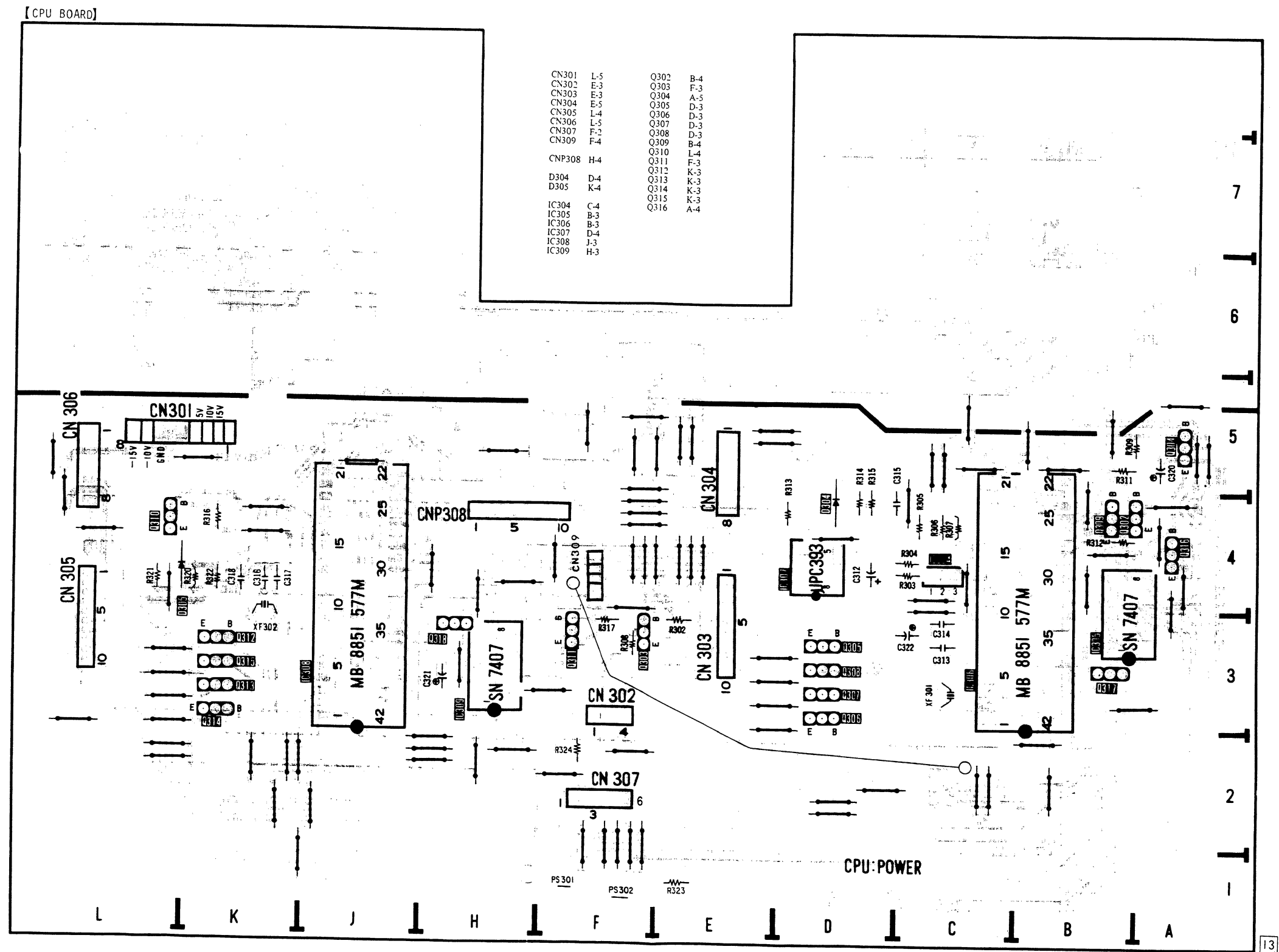




Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{10}\text{W}$ or less unless otherwise specified.
- : fusible resistor.
- : B+ bus.
- : B- bus.
- : adjustment for repair.
- Readings are taken under no-signal (detuned) conditions with a digital voltmeter (10 M Ω) is stop mode.
- () : COPY mode
- dB value: Value with input of a 2.5 kHz, 0 dB signal to CNP2.

CCP-310 CCP-310

7-7. CPU BOARD (S) — Soldering Side —

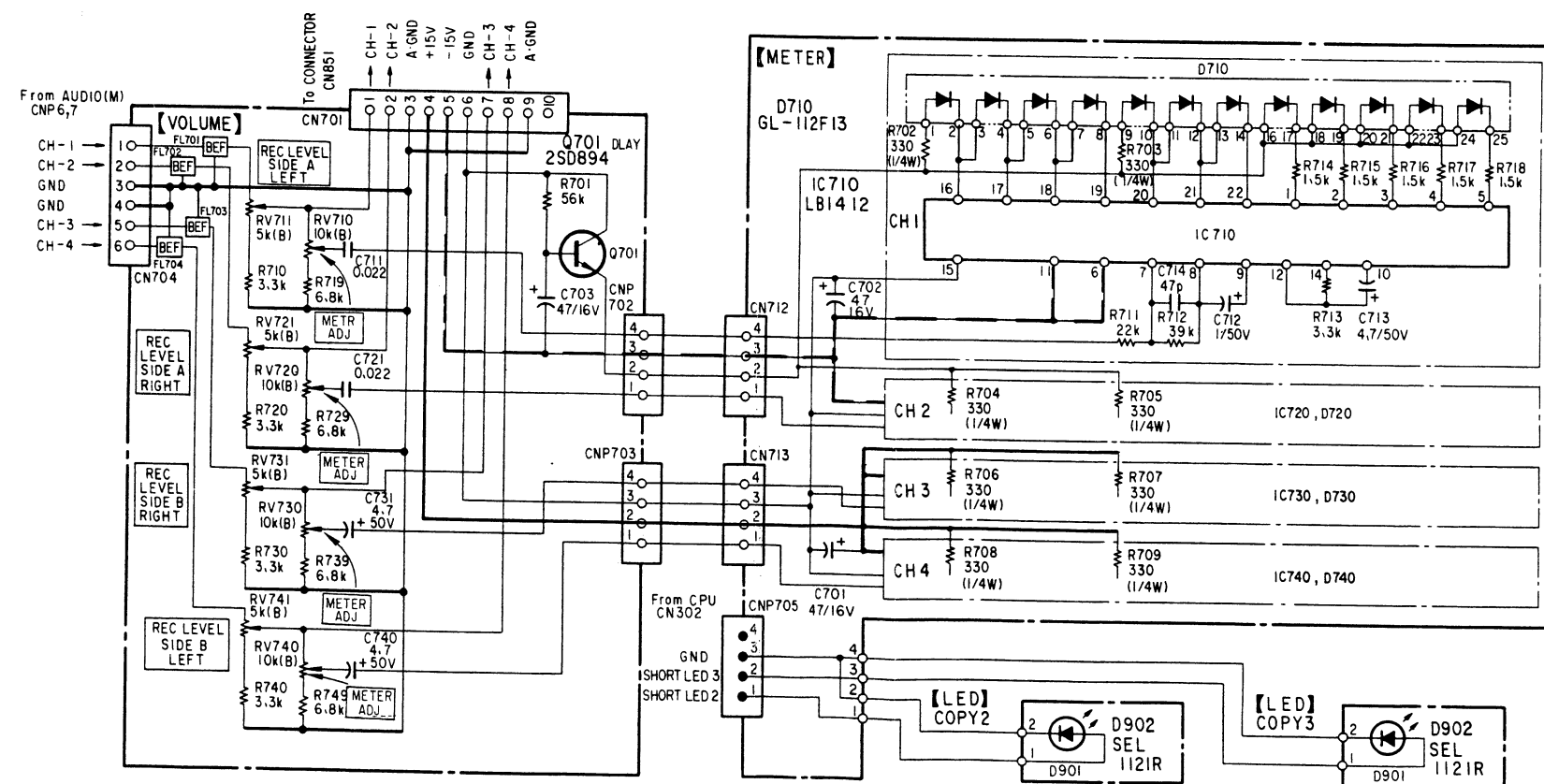
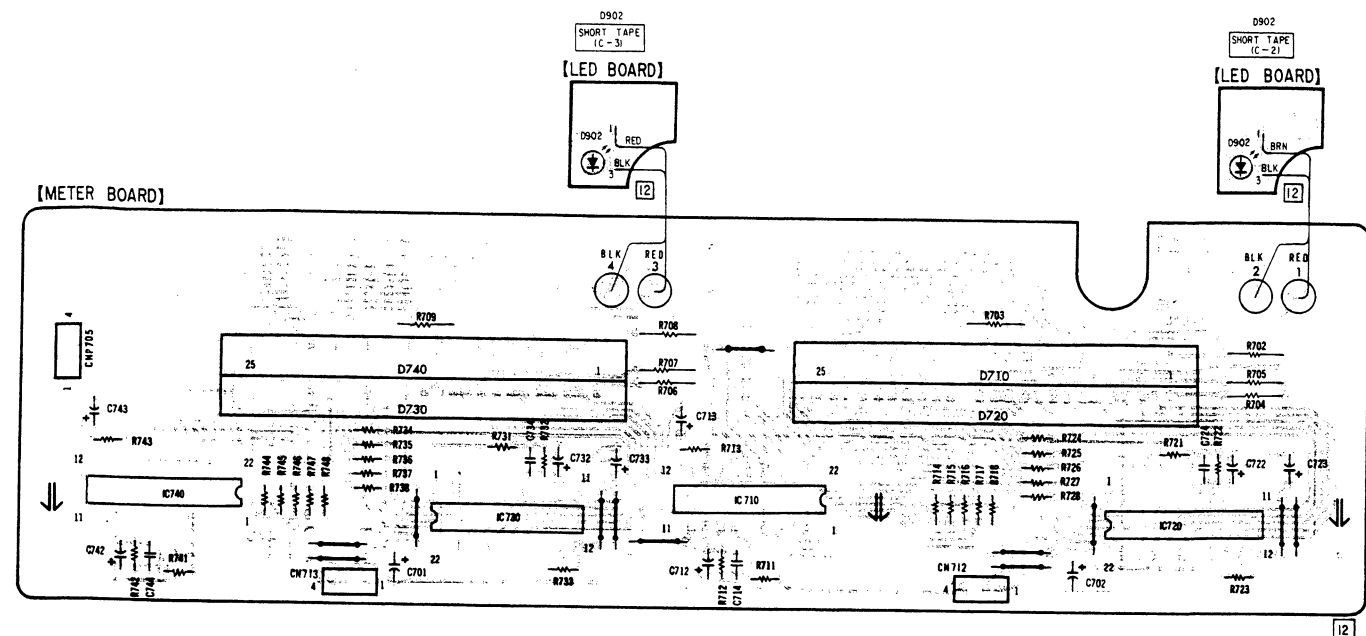
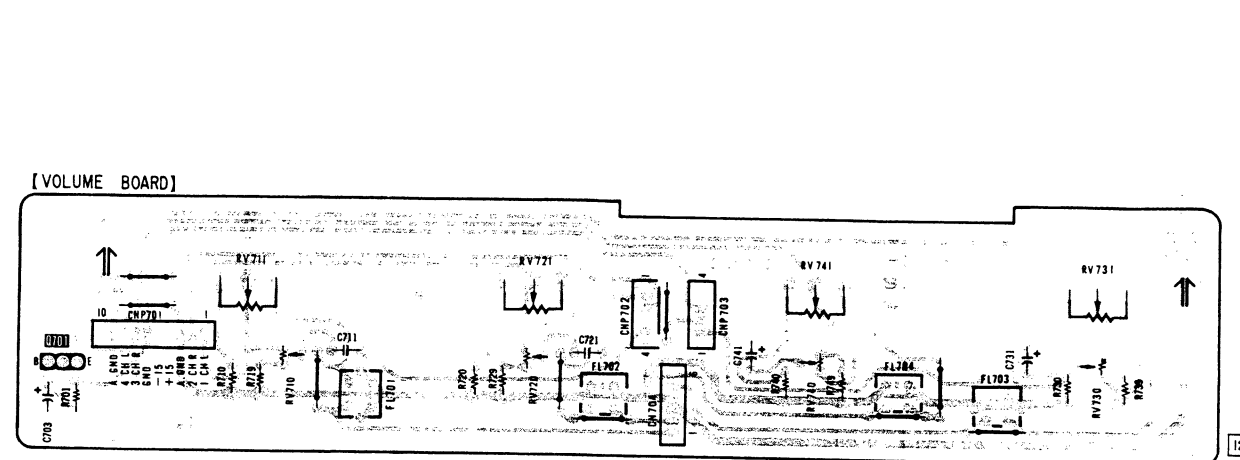


- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/10\text{W}$ or less unless otherwise specified.
-  : B+ bus.
-  : B- bus.

—68—

CCP-310 CCP-310




7-8. VOLUME, METER BOARD — Soldering Side —



Note:

-  : B+ pattern.

Note:

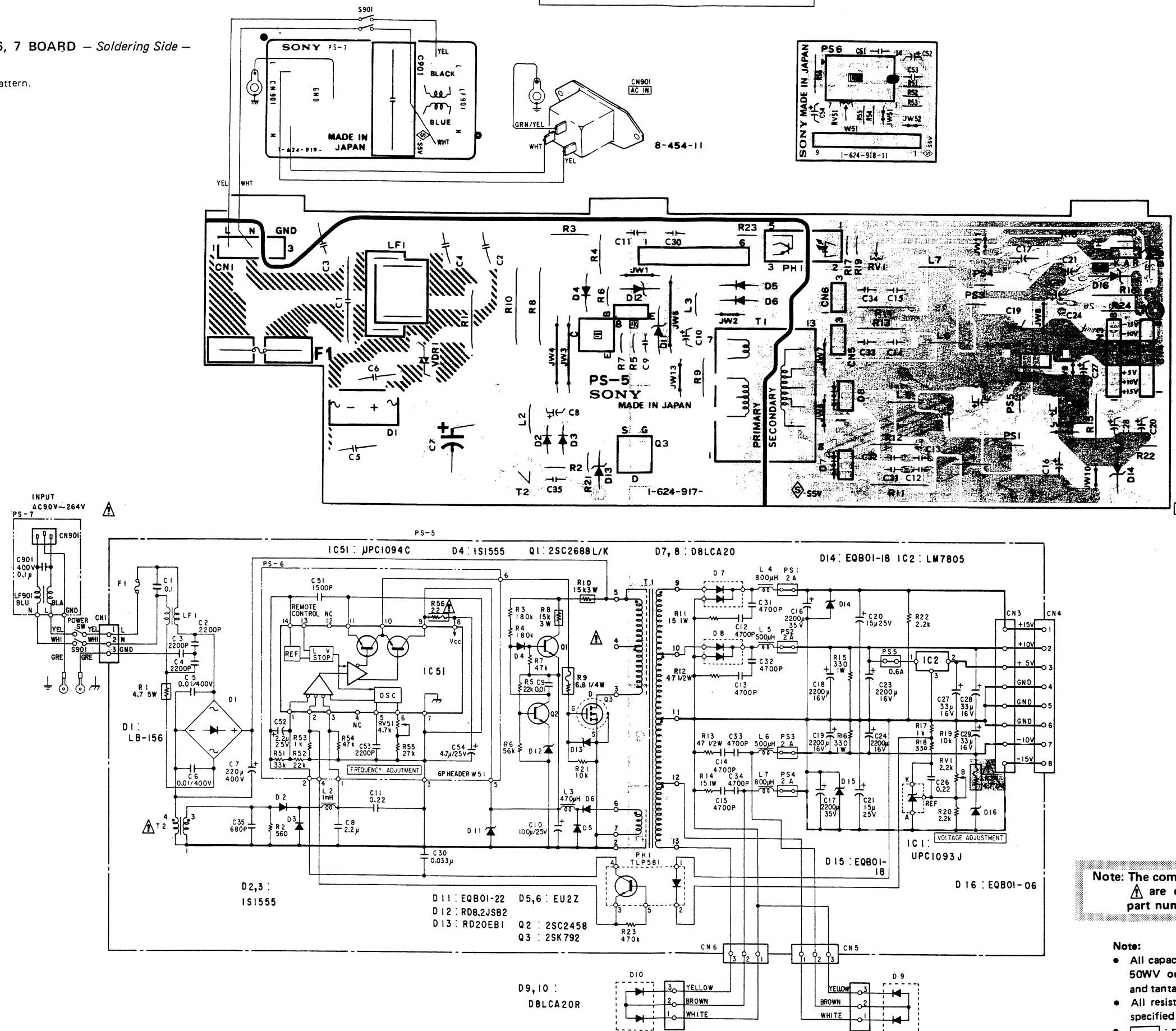
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu\text{F}$
50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/10\text{ W}$ or less unless otherwise specified.
-  : B+ bus.
-  : B- bus.
-  : adjustment for repair.

CCP-310 CCP-310

7-9. PS-5, 6, 7 BOARD – Soldering Side –

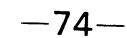
Note:

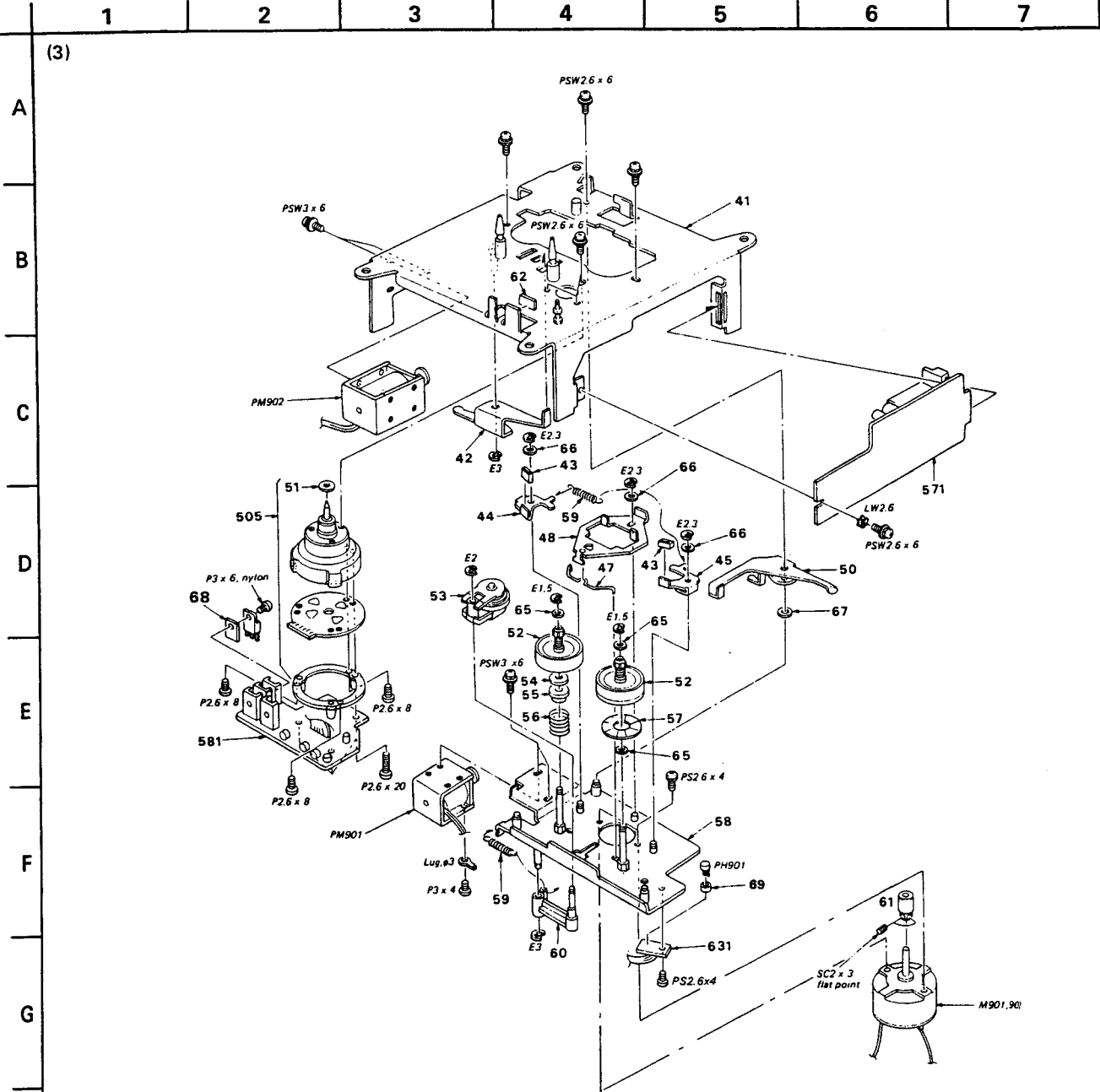
- : B+ pattern.



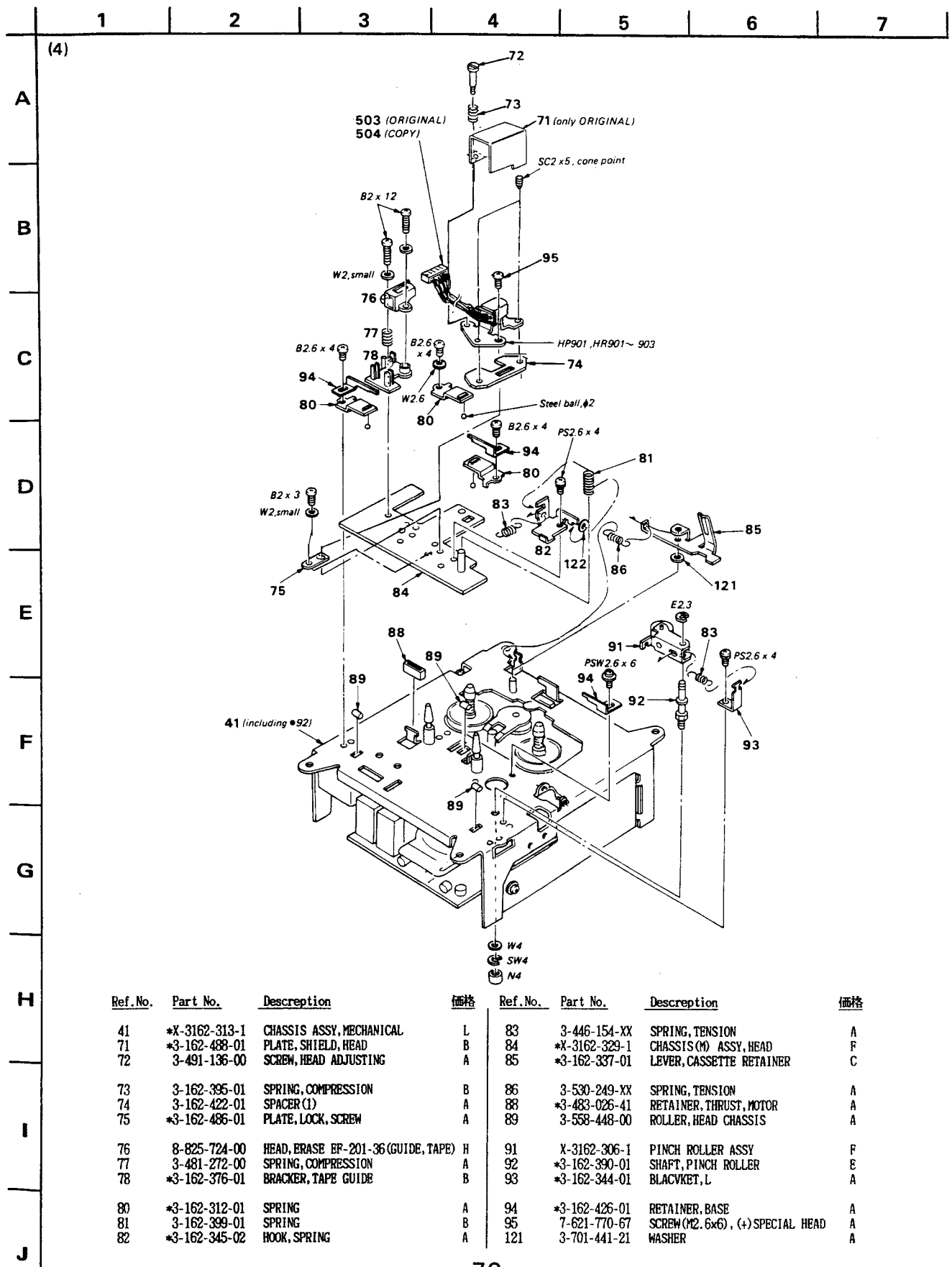
7-10. PARTS LIST

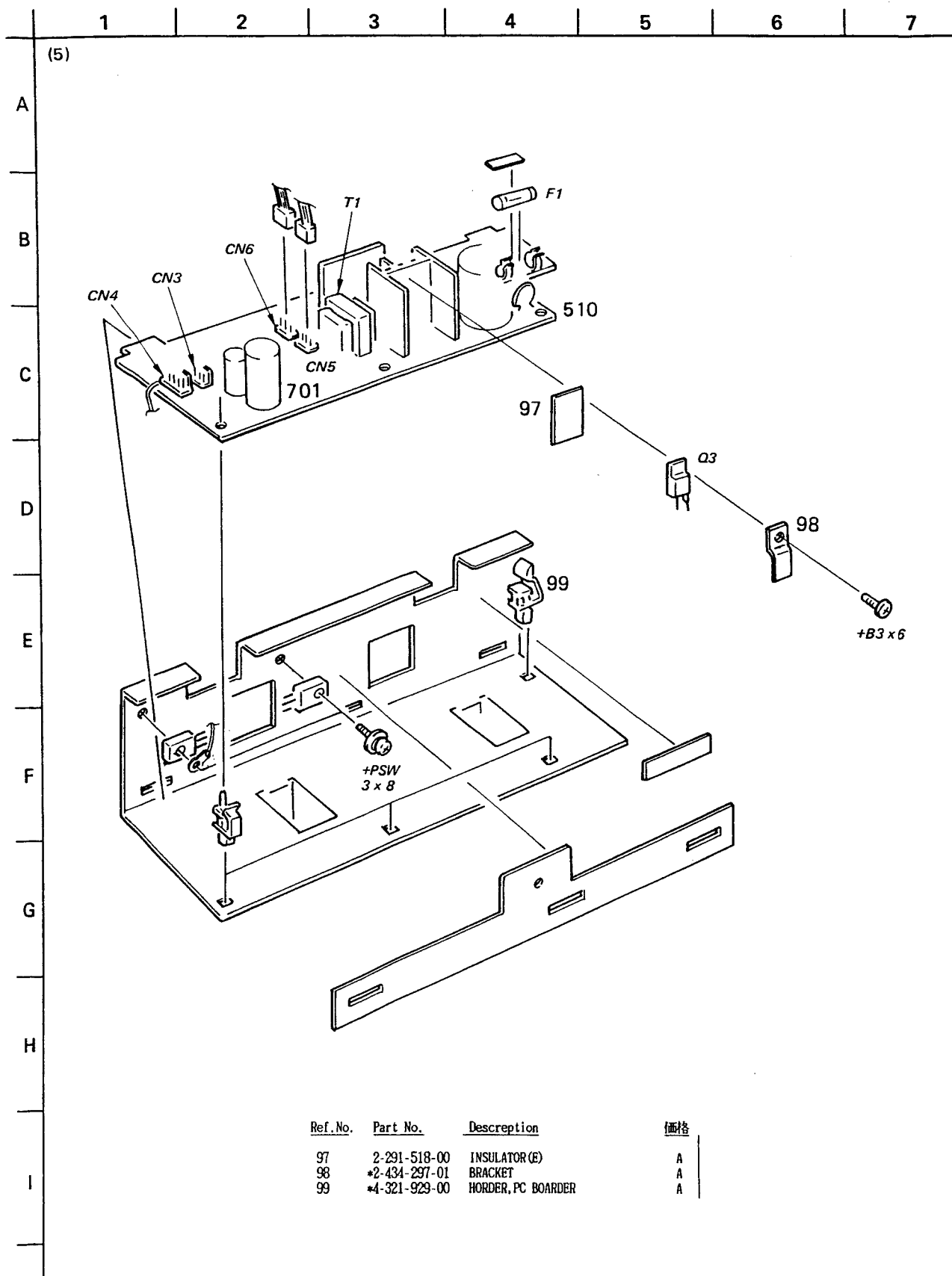
—73—





<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>價格</u>	<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>價格</u>
41	*X-3162-313-1	CHASSIS ASSY, MECHANICAL	L	56	3-152-738-00	SPRING, COMPRESSION	A
42	*3-162-313-01	LEVER, FWD	A	57	3-155-352-00	REFLECTOR	A
43	3-162-366-01	RUBBER, BRAKE	F	58	*X-3162-303-3	CHASSIS ASSY, REEL	K
44	*3-162-351-01	LEVER (LEFT), BRAKE	B	59	3-489-123-00	SPRING, TENSION	A
45	*3-162-354-01	LEVER (RIGHT), BRAKE	B	60	*X-3162-304-1	ARM (L) ASSY, IDLER	D
47	3-162-364-02	SPRING	B	61	3-162-357-01	PULLEY, MOTOR	G
48	*X-3162-307-3	PLATE ASSY, RELEASE, BRAKE	C	62	9-911-848-XX	CUSHION (S)	H
50	*3-162-319-01	LEVER, BRAKE	B	65	3-701-437-21	WASHER	A
51	3-162-415-01	WASHER, THRUST	A	66	3-701-439-21	WASHER	A
52	X-3162-317-1	TABLE ASSY, REEL	G	67	3-701-444-21	WASHER, 6	A
53	A-2191-025-A	PULLEY COMPETE ASSY, IDLER	N	68	*3-577-157-20	INSULATOR, TO-126	A
54	3-162-310-01	FELT, CLUTCH	A	69	*3-162-367-01	SPACER	B
55	3-162-356-01	RING, B.T	C				





Ref.No.	Part No.	Description	価格
<u>Accessories</u>			
	X-3701-105-0	HEAD CLEANING TIP	1 A
	A1-554-754-00	CORD, POWER (J ONLY)	1 G
	A1-554-812-11	CORD, POWER (US ONLY)	1
	A1-556-760-11	CORD, POWER (3 CORE) (AEP, UK ONLY)	1
	*3-162-452-01	COVER, DUST	1 H
	3-769-745-01	MANUAL, INSTRUCTION (J ONLY)	1 E
	3-769-745-11	MANUAL, INSTRUCTION (US, UK, AEP ONLY)	1
	3-769-745-41	MANUAL, INSTRUCTION (AEP ONLY)	1
		LEAFLET (J ONLY)	1
		CARD, WARRANTY (J ONLY)	1

<u>Electrical Parts</u>			
501	*1-558-063-11	CABLE, CONNECTION (2MM PITCH)	H
502	*1-558-308-11	LEAD (WITH CONNECTOR) 8P	J
503	*1-558-165-11	LEAD (WITH CONNECTOR) 12P	K
504	*1-558-071-11	LEAD (WITH CONNECTOR) 8P	E
505	1-541-316-11	MOTOR, CAPSTAN	S
510	*1-533-189-11	HOLDER, FUSE	A
51001 1-533-189-11 FUSE, 400V, 500V			
51002 1-533-189-11 FUSE, 400V, 500V			
51003 1-533-189-11 FUSE, 400V, 500V			
HP901	8-825-648-10	HEAD PF-165-3604B (PLAYBACK)	VE
HR901	8-825-649-10	HEAD PF-165-3604A (RECORD)	VE
HR902	8-825-649-10	HEAD PF-165-3604A (RECORD)	VE
HR903	8-825-649-10	HEAD PF-165-3604A (RECORD)	VE
MX01	1-541-163-00	MOTOR	J
MX02	1-541-163-00	MOTOR	J
PM901	1-454-404-11	SOLENOID, PLUNGER	J
PM902	1-454-405-11	SOLENOID, PLUNGER	J
RV711	1-237-105-11	RES, VAR, CARBON 5K	E
RV721	1-237-105-11	RES, VAR, CARBON 5K	E
RV731	1-237-105-11	RES, VAR, CARBON 5K	E
RV741	1-237-105-11	RES, VAR, CARBON 5K	E
5901 1-237-105-11 SWITCH, 300MA			

<u>Audio Board (M)</u>			
551	*A-2010-260-A	MOUNTED PCB (M), AUDIO	
C5	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C6	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C8	1-135-070-00	TANTAL. CHIP	0.1MF 20% 35V B
C9	1-136-161-00	MYLAR	0.047MF 10% 50V A
C10	1-163-093-00	CERAMIC CHIP	10PF 5% 50V A
C11	1-135-091-00	TANTAL. CHIP	1MF 20% 16V B
C12	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V A
C13	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C15	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C16	1-163-021-00	CERAMIC CHIP	0.01MF 10% 50V A
C18	1-135-083-00	TANTAL. CHIP	0.47MF 20% 25V B
C20	1-124-236-00	ELECT	47MF 20% 16V A
C21	1-124-236-00	ELECT	47MF 20% 16V A
C26	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C27	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C29	1-135-070-00	TANTAL. CHIP	0.1MF 20% 35V B
C30	1-136-161-00	MYLAR	0.047MF 10% 50V A
C31	1-163-093-00	CERAMIC CHIP	10PF 5% 50V A
C32	1-135-091-00	TANTAL. CHIP	1MF 20% 16V B
C33	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V A
C34	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C36	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C37	1-163-021-00	CERAMIC CHIP	0.01MF 10% 50V A
C39	1-135-083-00	TANTAL. CHIP	0.47MF 20% 25V B
C41	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C42	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C44	1-135-070-00	TANTAL. CHIP	0.1MF 20% 35V B
C45	1-136-161-00	MYLAR	0.047MF 10% 50V A
C46	1-163-093-00	CERAMIC CHIP	10PF 5% 50V A
C47	1-135-091-00	TANTAL. CHIP	1MF 20% 16V B
C48	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V A
C49	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A
C51	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C52	1-163-021-00	CERAMIC CHIP	0.01MF 10% 50V A
C54	1-135-083-00	CERAMIC CHIP	0.47MF 20% 25V B
C56	1-107-169-00	MICA	100PF 10% 500V A
C57	1-124-236-00	ELECT	47MF 20% 16V A
C58	1-124-236-00	ELECT	47MF 20% 16V A
C63	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A
C64	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

MF: μ F, PF: μ F.

RESISTORS

- All resistors are in ohms.
- F: nonflammable

COILS


- MMH: mH, UH: μ H

SEMICONDUCTORS

In each case, U: μ , for example:

UA...: μ A..., UPA...: μ PA..., UPC...: μ PC,



UPD...: μ PD...

The components identified by shading and mark  are critical for safety. Replace only with part number specified.

Ref.No.	Part No.	Description	価格	Ref.No.	Part No.	Description	価格
C66	1-135-070-00	TANTAL. CHIP	0.1MF 20% 35V B	CP1	1-409-437-11	COIL, BIAS TRAP	E
C67	1-136-161-00	MYLAR	0.047MF 10% 50V A	CP2	1-409-437-11	COIL, BIAS TRAP	E
C68	1-163-093-00	CERAMIC CHIP	10PF 5% 50V A	CP3	1-409-437-11	COIL, BIAS TRAP	E
C69	1-135-091-00	TANTAL. CHIP	1MF 20% 16V B	CP4	1-409-437-11	COIL, BIAS TRAP	E
C70	1-163-017-00	CERAMIC CHIP	0.0047MF 10% 50V A	CP5	1-464-885-11	OSCILLATION BLOCK, BIAS	I
C71	1-163-015-00	CERAMIC CHIP	0.0033MF 10% 50V A	CP6	1-427-590-11	TRANSFORMER, INPUT/OUTPUT	E
C73	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A	D1	8-719-100-03	DIODE 1S2835	A
C74	1-163-021-00	CERAMIC CHIP	0.01MF 10% 50V A	D3	8-719-100-03	DIODE 1S2835	A
C76	1-135-083-00	TANTAL. CHIP	0.47MF 20% 25V B	D4	8-719-100-94	DIODE RD27ER2	A
C78	1-107-169-00	MICA	100PF 10% 500V A	D6	8-719-200-82	DIODE 11ES2	A
C80	1-163-113-00	CERAMIC CHIP	68PF 5% 50V A	IC1	8-759-700-04	IC NJM2043D-D	F
C90	1-135-070-00	TANTAL. CHIP	0.1MF 20% 35V B	IC4	8-759-100-06	IC UP4556C	E
C91	1-163-109-00	CERAMIC CHIP	47PF 5% 50V A	IC5	8-759-900-72	IC NE5532P	G
C92	1-124-247-00	ELECT	10MF 20% 25V A	IC8	8-759-700-04	IC NJM2043D-D	F
C94	1-124-247-00	ELECT	10MF 20% 25V A	IC11	8-759-100-06	IC UP4556C	E
C95	1-124-247-00	ELECT	10MF 20% 25V A	IC12	8-759-900-72	IC NE5532P	G
C96	1-124-247-00	ELECT	10MF 20% 25V A	IC15	8-759-100-06	IC UP4556C	E
C97	1-124-247-00	ELECT	10MF 20% 25V A	JR1	1-216-295-00	METAL CHIP 0 5% 1/10W	A
C98	1-124-465-00	ELECT	0.47MF 20% 50V A	JR2	1-216-295-00	METAL CHIP 0 5% 1/10W	A
C99	1-131-353-00	TANTALUM	10MF 20% 35V D	L1	1-410-310-11	COIL, VARIABLE	E
C101	1-163-033-00	CERAMIC CHIP	0.022MF 10% 25V A	L2	1-410-310-11	COIL, VARIABLE	E
C102	1-109-631-00	MICA	330PF 5% 500V F	L3	1-410-310-11	COIL, VARIABLE	E
C103	1-130-472-00	MYLAR	0.0012MF 5% 50V A	L4	1-410-310-11	COIL, VARIABLE	E
C104	1-130-472-00	MYLAR	0.0012MF 5% 50V A	L5	1-410-311-11	COIL (SHIELD TYPE)	D
C105	1-130-472-00	MYLAR	0.0012MF 5% 50V A	L6	1-410-311-11	COIL (SHIELD TYPE)	D
C106	1-130-472-00	MYLAR	0.0012MF 5% 50V A	Q1	8-729-100-66	TRANSISTOR 2SC1623	A
C107	1-124-465-00	ELECT	0.47MF 20% 50V A	Q2	8-729-100-66	TRANSISTOR 2SC1623	A
CNP1	*1-560-465-00	PIN, CONNECTOR 12P	B	Q3	8-729-800-34	TRANSISTOR 2SC3070	C
CNP2	*1-560-463-00	PIN, CONNECTOR 8P	B	Q4	8-729-801-72	TRANSISTOR 2SC2603-E	A
CNP3	*1-560-469-00	PIN, CONNECTOR 6P	A	Q5	8-729-100-66	TRANSISTOR 2SC1623	A
CNP4	*1-560-467-00	PIN, CONNECTOR 4P	A	Q6	8-729-100-66	TRANSISTOR 2SC1623	A
CNP5	*1-560-467-00	PIN, CONNECTOR 4P	A	Q17	8-729-901-07	TRANSISTOR DTA124XK	A
CNP6	*1-560-467-00	PIN, CONNECTOR 4P	A				
CNP7	*1-560-467-00	PIN, CONNECTOR 4P	A				

- ・ * 印の部品は常備在庫しておりません。
- ・ 半導体は改良のため予告なく変更することがあります。
- ・ コンデンサーの単位でMFは μF を、pFは $\mu\mu F$ を示します。
- ・ マイクロインダクターの単位で、MMHはmHを、UHは μH を示します。
- ・ 抵抗の単位 Ω は省略してあります。
- ・ キン ビ：金属被膜抵抗。
- ・ サンキン：酸化金属被膜抵抗。
- ・ 記載されていない抵抗、コンデンサーについては、「補修用標準コンデンサー、抵抗価格表」を参照してください。

- ・ 抵抗の品名欄のFは不燃性抵抗を示します。
- ・ 半導体の名称でUA..., UPA..., UPB..., UPC..., UPD...等はそれぞれ μA ..., $\mu P A$..., $\mu P B$..., $\mu P C$..., $\mu P D$...を示します。
- ・ 同じ回路が複数あるような場合(例えばステレオ機など)の抵抗・コンデンサーについては、代表のみを表示し、他は省略する場合があります。

 および  印の部品は、安全性を維持するために、重要な部品です。従って交換時は、必ず指定の部品を使用して下さい。

Ref.No.	Part No.	Description	価格			
R2	1-216-029-00	METAL CHIP	150	5%	1/10W	A
R3	1-247-881-00	CARBON	120K	5%	1/4W	A
R4	1-216-073-00	METAL CHIP	10K	5%	1/10W	A
R7	1-216-085-00	METAL CHIP	33K	5%	1/10W	A
R8	1-216-049-00	METAL CHIP	1K	5%	1/10W	A
R9	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R10	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R11	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R12	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R13	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R14	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	A
R15	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R16	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	A
R19	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R21	1-216-029-00	METAL CHIP	150	5%	1/10W	A
R22	1-247-881-00	CARBON	120K	5%	1/4W	A
R23	1-216-073-00	METAL CHIP	10K	5%	1/10W	A
R26	1-216-085-00	METAL CHIP	33K	5%	1/10W	A
R27	1-216-049-00	METAL CHIP	1K	5%	1/10W	A
R28	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R29	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R30	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R31	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R32	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R33	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	A
R34	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R35	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	A
R38	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R39	1-247-713-11	CARBON	1K	5%	1/4W	A
R40	1-247-713-11	CARBON	1K	5%	1/4W	A
R46	1-216-029-00	METAL CHIP	150	5%	1/10W	A
R47	1-247-881-00	CARBON	120K	5%	1/4W	A
R48	1-216-073-00	METAL CHIP	10K	5%	1/10W	A
R51	1-216-085-00	METAL CHIP	33K	5%	1/10W	A
R52	1-216-049-00	METAL CHIP	1K	5%	1/10W	A
R53	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R54	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R55	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R56	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R57	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R58	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	A
R59	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R60	1-216-029-00	METAL CHIP	6.8K	5%	1/10W	A
R63	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R66	1-216-029-00	METAL CHIP	150	5%	1/10W	A
R67	1-247-881-00	CARBON	120K	5%	1/4W	A
R68	1-216-073-00	METAL CHIP	10K	5%	1/10W	A
R71	1-216-085-00	METAL CHIP	33K	5%	1/10W	A
R72	1-216-049-00	METAL CHIP	1K	5%	1/10W	A
R73	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R74	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R75	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R76	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R77	1-216-021-00	METAL CHIP	68	5%	1/10W	A
R78	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	A

Ref.No.	Part No.	Description	価格			
R79	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R80	1-216-029-00	METAL CHIP	6.8K	5%	1/10W	A
R83	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R85	1-247-713-11	CARBON	1K	5%	1/4W	A
R86	1-247-713-11	CARBON	1K	5%	1/4W	A
R91	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R92	1-216-081-00	METAL CHIP	22K	5%	1/10W	A
R93	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R94	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R95	1-216-091-00	METAL CHIP	56K	5%	1/10W	A
R96	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R97	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R100	1-216-089-00	METAL CHIP	47K	5%	1/10W	A
R101	1-247-719-11	CARBON	3.3K	5%	1/4W	A
R102	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	A
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W	A
R104	1-216-097-00	METAL CHIP	100K	5%	1/10W	A
R105	1-247-731-11	CARBON	24	5%	1/2W	A
R111	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R112	1-216-097-00	METAL CHIP	100K	5%	1/10W	A
R113	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	A
R114	1-216-097-00	METAL CHIP	100K	5%	1/10W	A
R115	1-215-421-11	FILM	1K	1%	1/6W	A
R122	1-216-097-00	METAL CHIP	100K	5%	1/10W	A
RV1	1-230-527-11	RES, ADJ, SOLID	100K			B
RV2	1-230-523-11	RES, ADJ, SOLID	10K			B
RV3	1-230-527-11	RES, ADJ, SOLID	100K			B
RV4	1-230-527-11	RES, ADJ, SOLID	100K			B
RV5	1-230-523-11	RES, ADJ, SOLID	10K			B
RV6	1-230-527-11	RES, ADJ, SOLID	100K			B
RV7	1-230-527-11	RES, ADJ, SOLID	100K			B
RV8	1-230-523-11	RES, ADJ, SOLID	10K			B
RV9	1-230-527-11	RES, ADJ, SOLID	100K			B
RV10	1-230-527-11	RES, ADJ, SOLID	100K			B
RV11	1-230-523-11	RES, ADJ, SOLID	10K			B
RV12	1-230-527-11	RES, ADJ, SOLID	100K			B
RV13	1-230-523-11	RES, ADJ, SOLID	10K			B
RV14	1-230-523-11	RES, ADJ, SOLID	10K			B
RV15	1-230-523-11	RES, ADJ, SOLID	10K			B
RV16	1-230-523-11	RES, ADJ, SOLID	10K			B
RY1	1-515-547-11	RELAY				J
RY2	1-515-547-11	RELAY				J
Bias 3 Board						
C1	1-109-542-00	MICA	220PF	5%	50V	E
C2	1-109-542-00	MICA	220PF	5%	50V	E
C3	1-109-631-00	MICA	330PF	5%	500V	E
L1	1-427-590-11	TRANSFORMER, INPUT/OUTPUT				E
RV1	1-226-703-11	RES, ADJ, METAL GLAZE	10K			C
RV2	1-226-703-11	RES, ADJ, METAL GLAZE	10K			C

Ref.No.	Part No.	Description	価格				
Bias 4 Board							
C1	1-109-542-00	MICA	220PF	5%	50V	E	
R1	1-249-385-11	CARBON	2.2	5%	1/4W	A	
RV1	1-226-703-11	RES, ADJ, METAL GLAZE 10K				C	
Audio Board (S)							
641	*A-2010-261-A	MOUNTED PCB (S), AUDIO					
C2	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C3	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C4	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C6	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C9	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C10	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C11	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C13	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C18	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C19	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C20	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C22	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C25	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C26	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C27	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C29	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C33	1-107-169-00	MICA	100PF	10%	500V	A	
C34	1-107-169-00	MICA	100PF	10%	500V	A	
C35	1-124-247-00	ELECT	10MF	20%	25V	A	
C36	1-124-247-00	ELECT	10MF	20%	25V	A	
C37	1-124-247-00	ELECT	10MF	20%	25V	A	
C38	1-124-247-00	ELECT	10MF	20%	25V	A	
C39	1-124-465-00	ELECT	0.47MF	20%	50V	A	
C40	1-131-353-00	TANTALUM	10MF	20%	35V	D	
C41	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C42	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C43	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C44	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C45	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C46	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C47	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C48	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C49	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C50	1-124-465-00	ELECT	0.47MF	20%	50V	A	
C102	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C103	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C104	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C106	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C109	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C110	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C111	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C113	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C118	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C119	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C120	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	

Ref.No.	Part No.	Description	価格				
C122	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C125	1-163-015-00	CERAMIC CHIP	0.0033MF	10%	50V	A	
C126	1-163-109-00	CERAMIC CHIP	47PF	5%	50V	A	
C127	1-163-021-00	CERAMIC CHIP	0.01MF	10%	50V	A	
C129	1-135-083-00	TANTAL. CHIP	0.47MF	20%	25V	B	
C133	1-107-169-00	MICA	100PF	10%	500V	A	
C134	1-107-169-00	MICA	100PF	10%	500V	A	
C135	1-124-247-00	ELECT	10MF	20%	25V	A	
C136	1-124-247-00	ELECT	10MF	20%	25V	A	
C137	1-124-247-00	ELECT	10MF	20%	25V	A	
C138	1-124-247-00	ELECT	10MF	20%	25V	A	
C139	1-124-465-00	ELECT	0.47MF	20%	50V	A	
C140	1-131-353-00	TANTALUM	10MF	20%	35V	D	
C141	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C142	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C143	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C144	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C145	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C146	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C147	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C148	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C149	1-130-472-00	MYLAR	0.0012MF	5%	50V	A	
C150	1-124-465-00	ELECT	0.47MF	20%	50V	A	
CNP1	*1-560-469-00	PIN, CONNECTOR 6P				A	
CNP2	*1-560-470-00	PIN, CONNECTOR 8P				A	
CNP3	*1-560-470-00	PIN, CONNECTOR 8P				A	
CNP4	*1-560-463-00	PIN, CONNECTOR 8P				B	
CNP104	*1-560-463-00	PIN, CONNECTOR 8P				B	
CP1	1-409-437-11	COIL, BIAS TRAP				E	
CP2	1-409-437-11	COIL, BIAS TRAP				E	
CP3	1-409-437-11	COIL, BIAS TRAP				E	
CP4	1-409-437-11	COIL, BIAS TRAP				E	
CP5	1-464-885-11	OSCILLATION BLOCK, BIAS				L	
CP101	1-409-437-11	COIL, BIAS TRAP				E	
CP102	1-409-437-11	COIL, BIAS TRAP				E	
CP103	1-409-437-11	COIL, BIAS TRAP				E	
CP104	1-409-437-11	COIL, BIAS TRAP				E	
CP105	1-464-885-11	OSCILLATION BLOCK, BIAS				L	
D1	8-719-200-82	DIODE 11ES2				A	
D2	8-719-100-03	DIODE 1S2835				A	
D3	8-719-100-94	DIODE RD27EB2				A	
D101	8-719-200-82	DIODE 11ES2				A	
D103	8-719-100-94	DIODE RD27EB2				A	
IC1	8-759-900-72	IC NE5532P				G	
IC4	8-759-900-72	IC NE5532P				G	
IC101	8-759-900-72	IC NE5532P				G	
IC104	8-759-900-72	IC NE5532P				G	
L1	1-410-310-11	COIL, VARIABLE				E	
L2	1-410-310-11	COIL, VARIABLE				E	
L3	1-410-310-11	COIL, VARIABLE				E	
L4	1-410-310-11	COIL, VARIABLE				E	
L5	1-410-311-11	COIL (SHIELD TYPE)				D	

Ref.No.	Part No.	Description	價格	Ref.No.	Part No.	Description	價格
L6	1-410-311-11	COIL (SHIELD TYPE)	D	R112	1-216-021-00	METAL CHIP	68 5% 1/10W A
L101	1-410-310-11	COIL, VARIABLE	E	R113	1-216-061-00	METAL CHIP	3.3K 5% 1/10W A
L102	1-410-310-11	COIL, VARIABLE	E	R114	1-216-069-00	METAL CHIP	6.8K 5% 1/10W A
L103	1-410-310-11	COIL, VARIABLE	E	R117	1-216-053-00	METAL CHIP	1.5K 5% 1/10W A
L104	1-410-310-11	COIL, VARIABLE	E	R118	1-216-057-00	METAL CHIP	2.2K 5% 1/10W A
L105	1-410-311-11	COIL (SHIELD TYPE)	D	R121	1-216-089-00	METAL CHIP	47K 5% 1/10W A
L106	1-410-311-11	COIL (SHIELD TYPE)	D	R122	1-216-089-00	METAL CHIP	47K 5% 1/10W A
Q1	8-729-100-66	TRANSISTOR 2SC1623	A	R123	1-216-021-00	METAL CHIP	68 5% 1/10W A
Q2	8-729-800-34	TRANSISTOR 2SC3070	C	R124	1-216-061-00	METAL CHIP	3.3K 5% 1/10W A
Q3	8-729-801-72	TRANSISTOR 2SC2603-E	A	R125	1-216-069-00	METAL CHIP	6.8K 5% 1/10W A
Q9	8-729-901-07	TRANSISTOR DTA124XK	A	R128	1-216-053-00	METAL CHIP	1.5K 5% 1/10W A
Q101	8-729-100-66	TRANSISTOR 2SC1623	A	R129	1-216-057-00	METAL CHIP	2.2K 5% 1/10W A
Q102	8-729-800-34	TRANSISTOR 2SC3070	C	R131	1-216-089-00	METAL CHIP	47K 5% 1/10W A
Q103	8-729-801-72	TRANSISTOR 2SC2603-E	A	R132	1-216-089-00	METAL CHIP	47K 5% 1/10W A
Q109	8-729-901-07	TRANSISTOR DTA124XK	A	R133	1-216-021-00	METAL CHIP	68 5% 1/10W A
R1	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	R134	1-216-061-00	METAL CHIP	3.3K 5% 1/10W A
R2	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	R135	1-216-069-00	METAL CHIP	6.8K 5% 1/10W A
R3	1-216-021-00	METAL CHIP 68 5% 1/10W	A	R138	1-216-053-00	METAL CHIP	1.5K 5% 1/10W A
R4	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	A	R139	1-216-057-00	METAL CHIP	2.2K 5% 1/10W A
R5	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	A	R143	1-216-089-00	METAL CHIP	47K 5% 1/10W A
R8	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	A	R144	1-247-719-11	CARBON	3.3K 5% 1/4W A
R9	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A	R145	1-216-057-00	METAL CHIP	2.2K 5% 1/10W A
R10	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	R146	1-216-073-00	METAL CHIP	10K 5% 1/10W A
R11	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	R147	1-216-097-00	METAL CHIP	100K 5% 1/10W A
R12	1-216-021-00	METAL CHIP 68 5% 1/10W	A	R148	1-247-731-11	CARBON	24 5% 1/2W A
R13	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	A	R150	1-216-097-00	METAL CHIP	100K 5% 1/10W A
R14	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	A	R151	1-215-421-11	FILM	1K 1% 1/6W A
R17	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	A	RV1	1-230-527-11	RES, ADJ, SOLID	100K B
R18	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A	RV2	1-230-527-11	RES, ADJ, SOLID	100K B
R21	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	RV3	1-230-527-11	RES, ADJ, SOLID	100K B
R22	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	RV4	1-230-527-11	RES, ADJ, SOLID	100K B
R23	1-216-021-00	METAL CHIP 68 5% 1/10W	A	RV101	1-230-527-11	RES, ADJ, SOLID	100K B
R24	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	A	RV102	1-230-527-11	RES, ADJ, SOLID	100K B
R25	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	A	RV103	1-230-527-11	RES, ADJ, SOLID	100K B
R28	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	A	RV104	1-230-527-11	RES, ADJ, SOLID	100K B
R29	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A	RY1	1-515-547-11	RELAY	J
R31	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	RY2	1-515-547-11	RELAY	J
R32	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	RY101	1-515-547-11	RELAY	J
R33	1-216-021-00	METAL CHIP 68 5% 1/10W	A	RY102	1-515-547-11	RELAY	J
R34	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	A				
R35	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	A				
R38	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	A				
R39	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A				
R43	1-216-089-00	METAL CHIP 47K 5% 1/10W	A				
R44	1-247-719-11	CARBON 3.3K 5% 1/4W	A				
R45	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A				
R46	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A				
R47	1-216-097-00	METAL CHIP 100K 5% 1/10W	A				
R48	1-247-731-11	CARBON 24 5% 1/2W	A				
R50	1-216-097-00	METAL CHIP 100K 5% 1/10W	A				
R51	1-215-421-11	FILM 1K 1% 1/6W	A				
R101	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	L1	1-427-590-11	TRANSFORMER, INPUT/OUTPUT	E
R102	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	L2	1-427-590-11	TRANSFORMER, INPUT/OUTPUT	E
R103	1-216-021-00	METAL CHIP 68 5% 1/10W	A	R1	1-249-385-11	CARBON 2.2 5% 1/4W	A
R104	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	A	R2	1-249-385-11	CARBON 2.2 5% 1/4W	A
R105	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	A	RV1	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
R108	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	A	RV2	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
R109	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	A	RV3	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
R110	1-216-089-00	METAL CHIP 47K 5% 1/10W	A	RV4	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
R111	1-216-089-00	METAL CHIP 47K 5% 1/10W	A				

Ref.No.	Part No.	Description	価格
<u>Bias 2 Board</u>			
C17	1-109-542-00	MICA 220PF 5% 50V	E
C18	1-107-181-00	MICA 220PF 5% 50V	E
C19	1-107-181-00	MICA 220PF 5% 50V	E
C20	1-107-181-00	MICA 220PF 5% 50V	E
C21	1-109-631-00	MICA 330PF 5% 500V	F
C22	1-109-631-00	MICA 330PF 5% 500V	F
L3	1-427-590-11	TRANSFORMER, INPUT/OUTPUT	E
L4	1-427-590-11	TRANSFORMER, INPUT/OUTPUT	E
R3	1-249-385-11	CARBON 2.2 5% 1/4W	A
R4	1-249-385-11	CARBON 2.2 5% 1/4W	A
RV5	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
RV6	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
RV7	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
RV8	1-226-703-11	RES, ADJ, METAL GLAZE 10K	C
<u>CPU Board (M)</u>			
561	*A-2012-143-A	MOUNTED PCB (M), CPU	
C212	1-124-261-00	ELECT 10MF 20% 50V	A
C213	1-102-959-00	CERAMIC 22PF 5% 50V	A
C214	1-102-959-00	CERAMIC 22PF 5% 50V	A
C215	1-130-495-00	MYLAR 0.1MF 5% 50V	A
C216	1-102-959-00	CERAMIC 22PF 5% 50V	A
C217	1-102-959-00	CERAMIC 22PF 5% 50V	A
C218	1-130-495-00	MYLAR 0.1MF 5% 50V	A
C220	1-131-347-00	TANTALUM 1MF 10% 25V	C
C221	1-131-347-00	TANTALUM 1MF 10% 25V	C
C222	1-131-347-00	TANTALUM 1MF 10% 25V	C
CN203	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P	G
CN204	*1-558-065-11	CABLE, CONNECTION (2MM PITCH) 8P	F
CN205	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P	G
CN206	*1-558-065-11	CABLE, CONNECTION (2MM PITCH) 8P	F
CN207	*1-558-064-11	CABLE, CONNECTION (2MM PITCH) 6P	E
CNP202	*1-560-465-00	PIN, CONNECTOR 12P	B
CNP208	*1-560-471-00	PIN, CONNECTOR 10P	B
CNP210	*1-560-459-00	PIN, CONNECTOR 3P	A
CP1	1-235-351-11	BLOCK, RESISTOR 2.2Kx4	A
D204	8-719-911-19	DIODE 1SS119	A
D205	8-719-911-19	DIODE 1SS119	A
D206	8-719-911-19	DIODE 1SS119	A
D207	8-719-911-19	DIODE 1SS119	A
D208	8-719-911-19	DIODE 1SS119	A
D209	8-719-911-19	DIODE 1SS119	A
IC204	8-759-913-42	IC PST520C-2	F
IC205	8-759-974-07	IC SN7407N	F
IC206	8-759-922-93	IC MB8851-625M	L
IC207	8-759-103-93	IC UPC393C	F
IC208	8-759-922-93	IC MB8851-625M	L
IC209	8-759-974-07	IC SN7407N	F
PS201	1-532-605-00	LINK, IC	C
PS202	1-532-679-11	LINK, IC	B

Ref.No.	Part No.	Description	価格
Q202	8-729-900-61	TRANSISTOR DTA114ES	A
Q203	8-729-900-61	TRANSISTOR DTA114ES	A
Q204	8-729-900-61	TRANSISTOR DTA114ES	A
Q205	8-729-900-61	TRANSISTOR DTA114ES	A
Q206	8-729-900-61	TRANSISTOR DTA114ES	A
Q207	8-729-900-61	TRANSISTOR DTA114ES	A
Q208	8-729-900-61	TRANSISTOR DTA114ES	A
Q209	8-729-900-61	TRANSISTOR DTA114ES	A
Q210	8-729-900-80	TRANSISTOR DTC114ES	A
Q211	8-729-900-61	TRANSISTOR DTA114ES	A
Q212	8-729-900-61	TRANSISTOR DTA114ES	A
Q213	8-729-900-61	TRANSISTOR DTA114ES	A
Q214	8-729-900-61	TRANSISTOR DTA114ES	A
Q217	8-729-900-80	TRANSISTOR DTC114ES	A
R202	1-249-401-11	CARBON 47 5% 1/4W	A
R203	1-249-424-11	CARBON 3.9K 5% 1/4W	A
R204	1-249-405-11	CARBON 100 5% 1/4W	A
R205	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R206	1-249-417-11	CARBON 1K 5% 1/4W	A
R211	1-249-413-11	CARBON 470 5% 1/4W	A
R212	1-249-413-11	CARBON 470 5% 1/4W	A
R215	1-247-887-00	CARBON 220K 5% 1/4W	A
R216	1-247-887-00	CARBON 220K 5% 1/4W	A
R217	1-247-887-00	CARBON 220K 5% 1/4W	A
R218	1-249-419-11	CARBON 1.5K 5% 1/4W	A
R219	1-249-413-11	CARBON 470 5% 1/4W	A
R220	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R223	1-247-887-00	CARBON 220K 5% 1/4W	A
R224	1-247-887-00	CARBON 220K 5% 1/4W	A
R225	1-247-887-00	CARBON 220K 5% 1/4W	A
R226	1-249-411-11	CARBON 330 5% 1/4W	A
R227	1-249-421-11	CARBON 2.2K 5% 1/4W	A
XF201	1-567-487-11	OSCILLATOR, CERAMIC	C
XF202	1-567-487-11	OSCILLATOR, CERAMIC	C
<u>CPU Board (S)</u>			
651	*A-2012-144-A	MOUNTED PCB (S), CPU	
C312	1-124-261-00	ELECT 10MFF 20% 50V	A
C313	1-102-959-00	CERAMIC 22PF 5% 50V	A
C314	1-102-959-00	CERAMIC 22PF 5% 50V	A
C315	1-130-495-00	MYLAR 0.1MF 5% 50V	A
C316	1-102-959-00	CERAMIC 22PF 5% 50V	A
C317	1-102-959-00	CERAMIC 22PF 5% 50V	A
C318	1-130-495-00	MYLAR 0.1MF 5% 50V	A
C320	1-131-347-00	TANTALUM 1MF 10% 25V	C
C321	1-131-347-00	TANTALUM 1MF 10% 25V	C
C322	1-131-347-00	TANTALUM 1MF 10% 25V	C
CN301	*1-564-372-00	PIN, CONNECTOR 8P	E
CN302	*1-558-067-31	CABLE, CONNECTION (2MM PITCH) 4P	D
CN303	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P	G
CN304	*1-558-065-11	CABLE, CONNECTION (2MM PITCH) 8P	F
CN305	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P	G
CN306	*1-558-065-11	CABLE, CONNECTION (2MM PITCH) 8P	F
CN307	*1-558-064-11	CABLE, CONNECTION (2MM PITCH) 6P	E
CN309	*1-564-241-00	PIN, CONNECTOR 4P	A
CNP308	*1-560-471-00	PIN, CONNECTOR 10P	B

Ref.No.	Part No.	Description	価格	Ref.No.	Part No.	Description	価格
D304	8-719-911-19	DIODE 1SS119	A	Mech Drive Board			
D305	8-719-911-19	DIODE 1SS119	A	571	*A-2019-210-A	MOUNTED MECH DRIVE (S1)	
IC304	8-759-913-42	IC PST520C-2	F	C401	1-124-236-00	ELECT 47MF 20% 16V	A
IC305	8-759-974-07	IC SN7407N	F	C402	1-124-631-11	ELECT 47MF 20% 16V	A
IC306	8-759-922-93	IC MB8851-62SM	L	CNP401	*1-560-471-00	PIN,CONNECTOR 10P	B
IC307	8-759-103-93	IC UPC393C	F	CNP402	*1-560-470-00	PIN,CONNECTOR 8P	A
IC308	8-759-922-93	IC MB8851-62SM	L	CNP403	*1-560-469-00	PIN,CONNECTOR 6P	A
IC309	8-759-974-07	IC SN7407N	F	D401	8-719-920-33	DIODE ERA15-04	
PS301	1-532-605-00	LINK, IC	C	D402	8-719-200-82	DIODE 11ES2	A
PS302	1-532-679-11	LINK, IC	B	D403	8-719-200-82	DIODE 11ES2	A
Q302	8-729-900-61	TRANSISTOR DTA114ES	A	D404	8-719-911-19	DIODE 1SS119	A
Q303	8-729-900-61	TRANSISTOR DTA114ES	A	D405	8-719-911-19	DIODE 1SS119	A
Q304	8-729-900-80	TRANSISTOR DTC114ES	A	D406	8-719-911-19	DIODE 1SS119	A
Q305	8-729-900-61	TRANSISTOR DTA114ES	A	D407	8-719-911-19	DIODE 1SS119	A
Q306	8-729-900-61	TRANSISTOR DTA114ES	A	D408	8-719-100-13	DIODE RD2.7EB2	A
Q307	8-729-900-61	TRANSISTOR DTA114ES	A	D409	8-719-920-33	DIODE ERA15-04	
Q308	8-729-900-61	TRANSISTOR DTA114ES	A	IC401	8-741-122-10	IC BX-1221	K
Q309	8-729-801-72	TRANSISTOR 2SC2603-E	A	Q401	8-729-900-63	TRANSISTOR DTA124ES	A
Q310	8-729-900-61	TRANSISTOR DTA114ES	A	Q402	8-729-900-63	TRANSISTOR DTA124ES	A
Q311	8-729-900-80	TRANSISTOR DTC114ES	A	Q403	8-729-900-80	TRANSISTOR DTC114ES	A
Q312	8-729-900-61	TRANSISTOR DTA114ES	A	Q405	8-729-904-24	TRANSISTOR 2SD1788	C
Q313	8-729-900-61	TRANSISTOR DTA114ES	A	Q406	8-729-800-83	TRANSISTOR 2SB808	B
Q314	8-729-900-61	TRANSISTOR DTA114ES	A	Q407	8-729-800-83	TRANSISTOR 2SB808	B
Q315	8-729-900-61	TRANSISTOR DTA114ES	A	Q408	8-729-811-22	TRANSISTOR 2SD1012-F2	A
Q316	8-729-801-72	TRANSISTOR 2SC2603-E	A	Q409	8-729-811-22	TRANSISTOR 2SD1012-F2	A
R302	1-249-413-11	CARBON 470 5% 1/4W	A	Q410	8-729-802-87	TRANSISTOR 2SB892	B
R303	1-249-401-11	CARBON 47 5% 1/4W	A	R401	1-247-752-11	CARBON 1K 5% 1/2W	A
R304	1-249-424-11	CARBON 3.9K 5% 1/4W	A	R402	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R305	1-249-405-11	CARBON 100 5% 1/4W	A	R403	1-249-413-11	CARBON 470 5% 1/4W	A
R306	1-249-425-11	CARBON 4.7K 5% 1/4W	A	R404	1-249-413-11	CARBON 470 5% 1/4W	A
R307	1-249-417-11	CARBON 1K 5% 1/4W	A	R405	1-249-419-11	CARBON 1.5K 5% 1/4W	A
R308	1-249-413-11	CARBON 470 5% 1/4W	A	R406	1-249-423-11	CARBON 3.3K 5% 1/4W	A
R309	1-249-420-11	CARBON 1.8K 5% 1/4W	A	R407	1-249-427-11	CARBON 6.8K 5% 1/4W	A
R311	1-249-429-11	CARBON 10K 5% 1/4W	A	R408	1-249-421-11	CARBON 2.2K 5% 1/4W	A
R312	1-249-429-11	CARBON 10K 5% 1/4W	A	R409	1-249-441-11	CARBON 100K 5% 1/4W	A
R313	1-247-887-00	CARBON 220K 5% 1/4W	A	R410	1-249-417-11	CARBON 1K 5% 1/4W	A
R314	1-247-887-00	CARBON 220K 5% 1/4W	A	R411	1-249-417-11	CARBON 1K 5% 1/4W	A
R315	1-247-887-00	CARBON 220K 5% 1/4W	A	R413	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R316	1-249-413-11	CARBON 470 5% 1/4W	A	R414	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R317	1-249-420-11	CARBON 1.8K 5% 1/4W	A	R415	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R320	1-247-887-00	CARBON 220K 5% 1/4W	A	R416	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R321	1-247-887-00	CARBON 220K 5% 1/4W	A	R417	1-247-849-00	CARBON 5.6K 5% 1/4W	A
R322	1-247-887-00	CARBON 220K 5% 1/4W	A	R418	1-249-429-11	CARBON 10K 5% 1/4W	A
R323	1-249-421-11	CARBON 2.2K 5% 1/4W	A	R420	Δ1-212-950-00	FUSIBLE 4.7 5% 1/2W F	A
R324	1-249-421-11	CARBON 2.2K 5% 1/4W	A	R421	Δ1-215-858-00	METAL OXIDE 15 5% 1W F	A
XF301	1-567-487-11	OSCILLATOR, CERAMIC	C	R4401	1-230-520-11	RES, ADJ, SOLID 1K	B
XF302	1-567-487-11	OSCILLATOR, CERAMIC	C	R4402	1-230-521-11	RES, ADJ, SOLID 2.2K	B

Ref.No.	Part No.	Description					価格
Motor Drive Board							
581	*A-2020-080-A	MOUNTED PCB, MOTOR DRIVE					S
C501	1-136-161-00	MYLAR	0.047MF	10%	50V	A	
C502	1-124-462-00	ELECT	10MF	20%	16V	A	
C503	1-124-462-00	ELECT	10MF	20%	16V	A	
C504	1-136-164-00	FILM	0.082MF	5%	50V	A	
C505	1-136-153-00	MYLAR	0.01MF	10%	50V	A	
C506	1-136-155-00	MYLAR	0.015MF	10%	50V	A	
C507	1-124-462-00	ELECT	10MF	20%	16V	A	
C508	1-124-258-00	ELECT	3.3MF	20%	35V	A	
C509	1-124-462-00	ELECT	10MF	20%	16V	A	
C510	1-136-157-00	MYLAR	0.022MF	10%	50V	A	
CN501	*1-558-064-11	CABLE, CONNECTION (2MM PITCH) 6P					E
CN502	*1-555-130-00	WIRE, PVC					G
D501	8-719-815-55	DIODE 1S1555					A
D502	8-719-815-55	DIODE 1S1555					A
IC501	8-759-602-65	IC CX-065B					E
IC502	8-759-145-58	IC UPC4558C					F
Q501	8-729-606-32	TRANSISTOR 2SC2603-E					A
Q502	8-729-606-32	TRANSISTOR 2SC2603-E					A
Q503	8-729-288-02	TRANSISTOR 2SD880-0					C
Q504	8-729-283-41	TRANSISTOR 2SB834-0					D
Q505	8-729-288-02	TRANSISTOR 2SD880-0					C
Q506	8-729-283-41	TRANSISTOR 2SB834-0					D
R501	1-249-419-11	CARBON 1.5K	5%	1/4W		A	
R502	1-249-429-11	CARBON 10K	5%	1/4W		A	
R503	1-249-437-11	CARBON 47K	5%	1/4W		A	
R504	1-249-441-11	CARBON 100K	5%	1/4W		A	
R505	1-249-438-11	CARBON 56K	5%	1/4W		A	
R506	1-247-881-00	CARBON 120K	5%	1/4W		A	
R507	Δ1-206-644-00	METAL OXIDE 150	5%	2W		F B	
R508	1-249-409-11	CARBON 220	5%	1/4W		A	
R509	1-249-417-11	CARBON 1K	5%	1/4W		A	
R510	1-249-402-11	CARBON 56	5%	1/4W		A	
R511	1-249-402-11	CARBON 56	5%	1/4W		A	
R512	1-249-417-11	CARBON 1K	5%	1/4W		A	
R513	1-247-883-00	CARBON 150K	5%	1/4W		A	
R514	1-215-493-00	CARBON 1M	5%	1/4W		A	
R515	1-247-883-00	CARBON 150K	5%	1/4W		A	
R516	1-249-425-11	CARBON 4.7K	5%	1/4W		A	
R517	1-249-425-11	CARBON 4.7K	5%	1/4W		A	
R518	1-215-493-00	CARBON 1M	5%	1/4W		A	
R519	1-249-425-11	CARBON 4.7K	5%	1/4W		A	
R520	1-249-425-11	CARBON 4.7K	5%	1/4W		A	
R521	1-247-883-00	CARBON 150K	5%	1/4W		A	
R522	1-247-883-00	CARBON 150K	5%	1/4W		A	
R523	1-249-405-11	CARBON 100	5%	1/4W		A	
R524	1-249-405-11	CARBON 100	5%	1/4W		A	
R525	Δ1-217-377-11	FUSIBLE 1.5	5%	1/4W		F B	
R526	Δ1-217-377-11	FUSIBLE 1.5	5%	1/4W		F B	
R527	1-249-432-11	CARBON 18K	5%	1/4W		A	
R528	1-249-428-11	CARBON 8.2K	5%	1/4W		A	
R529	1-249-429-11	CARBON 10K	5%	1/4W		A	
R530	1-249-409-11	CARBON 220	5%	1/4W		A	
R531	1-249-433-11	CARBON 22K	5%	1/4W		A	
R532	1-249-434-11	CARBON 27K	5%	1/4W		A	

Ref.No.	Part No.	Description	価格			
RV501	1-226-773-11	RES, ADJ, METAL GLAZE 22K				B
RV502	1-230-893-11	RES, ADJ, METAL GLAZE 220				C
RV503	1-228-761-00	RES, ADJ, METAL GLAZE 100K				C
RV504	1-228-761-00	RES, ADJ, METAL GLAZE 100K				C
TH501	1-800-202-XX	THERMISTOR S-10K				D
Switch Board						
591	*1-616-214-11	PC BOARD, SWITCH				C
CN602	*1-558-069-11	LEAD (WITH DIP CONNECTOR)				D
CNP601	*1-560-465-00	PIN CONNECTOR 12P				B
D601	8-719-911-06	DIODE 1SS106				A
D602	8-719-311-21	DIODE SEL1121R				A
D603	8-719-311-21	DIODE SEL1121R				A
R601	1-249-413-11	CARBON 470 5% 1/4W				A
S601	1-570-113-11	SWITCH, KEY BOARD				C
S602	1-570-113-11	SWITCH, KEY BOARD				C
S603	1-570-113-11	SWITCH, KEY BOARD				C
S604	1-570-113-11	SWITCH, KEY BOARD				C
S605	1-554-481-00	SWITCH, SLIDE				C
S606	1-554-481-00	SWITCH, SLIDE				C
Connector Board						
601	*A-2025-155-A	MOUNTED PCB, CONNECTOR				P
C850	1-123-611-00	ELECT 1MF 20% 50V				A
C851	1-123-611-00	ELECT 1MF 20% 50V				A
C852	1-130-475-00	MYLAR 0.0022MF 10% 50V				A
C853	1-107-042-00	MICA 2.2PF 0.5PF 500V				A
C860	1-123-611-00	ELECT 1MF 20% 50V				A
C861	1-123-611-00	ELECT 1MF 20% 50V				A
C862	1-130-475-00	MYLAR 0.0022MF 10% 50V				A
C863	1-107-042-00	MICA 2.2PF 0.5PF 500V				A
C870	1-123-611-00	ELECT 1MF 20% 50V				A
C871	1-123-611-00	ELECT 1MF 20% 50V				A
C872	1-130-475-00	MYLAR 0.0022MF 10% 50V				A
C873	1-107-042-00	MICA 2.2PF 0.5PF 500V				A
C880	1-123-611-00	ELECT 1MF 20% 50V				A
C881	1-123-611-00	ELECT 1MF 20% 50V				A
C882	1-130-475-00	MYLAR 0.0022MF 10% 50V				A
C883	1-107-042-00	MICA 2.2PF 0.5PF 500V				A
C890	1-124-236-00	ELECT 47MF 20% 16V				A
C891	1-124-236-00	ELECT 47MF 20% 16V				A
CN850	*1-558-314-11	CABLE, CONNECTION (2MM PITCH) 3P				D
CN851	*1-558-311-11	CABLE, CONNECTION				K
CN852	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P				G
CN853	*1-558-310-11	CABLE, CONNECTION				J
CN856	*1-558-309-11	CABLE, CONNECTION				F
CNJ854	1-562-090-00	JACK 13P				F
CNJ855	1-562-090-00	JACK 13P				F
CP890	1-232-990-11	COMPOSITION CIRCUIT BLOCK				B

Ref.No.	Part No.	Description	價格
1C890	8-759-900-05	IC SN74LS05N	F
1C891	8-759-100-06	IC UPC4556C	E
1C892	8-759-100-06	IC UPC4556C	E
Q891	8-729-195-23	TRANSISTOR 2SA952	C
Q892	8-729-195-23	TRANSISTOR 2SA952	C
Q893	8-729-195-23	TRANSISTOR 2SA952	C
Q894	8-729-195-23	TRANSISTOR 2SA952	C
Q895	8-729-195-23	TRANSISTOR 2SA952	C
R850	1-249-438-11	CARBON 56K 5% 1/4W	A
R851	1-249-429-11	CARBON 10K 5% 1/4W	A
R852	1-249-429-11	CARBON 10K 5% 1/4W	A
R853	1-249-441-11	CARBON 100K 5% 1/4W	A
R854	1-249-397-11	CARBON 22 5% 1/4W	A
R855	1-249-434-11	CARBON 27K 5% 1/4W	A
R856	1-249-429-11	CARBON 10K 5% 1/4W	A
R860	1-249-438-11	CARBON 56K 5% 1/4W	A
R861	1-249-429-11	CARBON 10K 5% 1/4W	A
R862	1-249-429-11	CARBON 10K 5% 1/4W	A
R863	1-249-441-11	CARBON 100K 5% 1/4W	A
R864	1-249-397-11	CARBON 22 5% 1/4W	A
R865	1-249-434-11	CARBON 27K 5% 1/4W	A
R866	1-249-429-11	CARBON 10K 5% 1/4W	A
R870	1-249-438-11	CARBON 56K 5% 1/4W	A
R871	1-249-429-11	CARBON 10K 5% 1/4W	A
R872	1-249-429-11	CARBON 10K 5% 1/4W	A
R873	1-249-441-11	CARBON 100K 5% 1/4W	A
R874	1-249-397-11	CARBON 22 5% 1/4W	A
R875	1-249-434-11	CARBON 27K 5% 1/4W	A
R876	1-249-429-11	CARBON 10K 5% 1/4W	A
R880	1-249-438-11	CARBON 56K 5% 1/4W	A
R881	1-249-429-11	CARBON 10K 5% 1/4W	A
R882	1-249-429-11	CARBON 10K 5% 1/4W	A
R883	1-249-441-11	CARBON 100K 5% 1/4W	A
R884	1-249-397-11	CARBON 22 5% 1/4W	A
R885	1-249-434-11	CARBON 27K 5% 1/4W	A
R886	1-249-429-11	CARBON 10K 5% 1/4W	A
R890	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R891	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R892	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R893	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R894	1-249-420-11	CARBON 1.8K 5% 1/4W	A
R895	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R896	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R897	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R898	1-249-425-11	CARBON 4.7K 5% 1/4W	A
R899	1-249-425-11	CARBON 4.7K 5% 1/4W	A
S890	1-516-171-00	SLIDE SWITCH	E

Ref.No.	Part No.	Description	價格
Volume Board			
681	*1-617-607-11	PC BOARD, VOLUME	E
C703	1-124-236-00	ELECT 47MF 20% 16V	A
C711	1-130-487-00	MYLAR 0.022MF 5% 50V	A
C721	1-130-487-00	MYLAR 0.022MF 5% 50V	A
C731	1-124-259-00	ELECT 4.7MF 20% 50V	A
C741	1-124-259-00	ELECT 4.7MF 20% 50V	A
CN704	*1-558-312-11	CABLE, CONNECTION	J
CNP701	*1-560-464-00	PIN, CONNECTOR 10P	B
CNP702	*1-560-467-00	PIN, CONNECTOR 4P	A
CNP703	*1-560-467-00	PIN, CONNECTOR 4P	A
CP701	1-409-436-11	COIL, TRAP	E
CP702	1-409-436-11	COIL, TRAP	E
CP703	1-409-436-11	COIL, TRAP	E
CP704	1-409-436-11	COIL, TRAP	E
Q701	8-729-889-40	TRANSISTOR 2SD894	C
R701	1-249-438-11	CARBON 56K 5% 1/4W	A
R710	1-249-423-11	CARBON 3.3K 5% 1/4W	A
R719	1-249-427-11	CARBON 6.8K 5% 1/4W	A
R720	1-249-423-11	CARBON 3.3K 5% 1/4W	A
R729	1-249-427-11	CARBON 6.8K 5% 1/4W	A
R730	1-249-423-11	CARBON 3.3K 5% 1/4W	A
R739	1-249-427-11	CARBON 6.8K 5% 1/4W	A
R740	1-249-423-11	CARBON 3.3K 5% 1/4W	A
R749	1-249-427-11	CARBON 6.8K 5% 1/4W	A
RV710	1-230-523-11	RES, ADJ, SOLID 10K	B
RV720	1-230-523-11	RES, ADJ, SOLID 10K	B
RV730	1-230-523-11	RES, ADJ, SOLID 10K	B
RV740	1-230-523-11	RES, ADJ, SOLID 10K	B
Level Meter Board			
691	*1-617-606-11	PC BOARD, METER	G
C701	1-124-236-00	ELECT 47MF 20% 16V	A
C702	1-124-236-00	ELECT 47MF 20% 16V	A
C712	1-123-611-00	ELECT 1MF 20% 50V	A
C713	1-124-259-00	ELECT 4.7MF 20% 50V	A
C714	1-101-880-00	CERAMIC 47PF 5% 50V	A
C722	1-123-611-00	ELECT 1MF 20% 50V	A
C723	1-124-259-00	ELECT 4.7MF 20% 50V	A
C724	1-101-880-00	CERAMIC 47PF 5% 50V	A
C732	1-123-611-00	ELECT 1MF 20% 50V	A
C733	1-124-259-00	ELECT 4.7MF 20% 50V	A

Ref.No.	Part No.	Description	価格			
C734	1-101-880-00	CERAMIC	47PF	5%	50V	A
C742	1-123-611-00	ELECT	1MF	20%	50V	A
C743	1-124-259-00	ELECT	4.7MF	20%	50V	A
C744	1-101-880-00	CERAMIC	47PF	5%	50V	A
CN712	*1-558-067-21	CABLE, CONNECTION (2MM PITCH)	4P			D
CN713	*1-558-067-21	CABLE, CONNECTION (2MM PITCH)	4P			D
CNP705	*1-560-460-00	PIN, CONNECTOR	4P			A
D710	8-719-936-77	DIODE GL112F13				J
D720	8-719-936-77	DIODE GL112F13				J
D730	8-719-936-77	DIODE GL112F13				J
D740	8-719-936-77	DIODE GL112F13				J
IC710	8-759-801-07	IC LB1412				G
IC720	8-759-801-07	IC LB1412				G
IC730	8-759-801-07	IC LB1412				G
IC740	8-759-801-07	IC LB1412				G
R702	1-247-706-11	CARBON	330	5%	1/4W	A
R703	1-247-706-11	CARBON	330	5%	1/4W	A
R704	1-247-706-11	CARBON	330	5%	1/4W	A
R705	1-247-706-11	CARBON	330	5%	1/4W	A
R706	1-247-706-11	CARBON	330	5%	1/4W	A
R707	1-247-706-11	CARBON	330	5%	1/4W	A
R708	1-247-706-11	CARBON	330	5%	1/4W	A
R709	1-247-706-11	CARBON	330	5%	1/4W	A
R711	1-249-433-11	CARBON	22K	5%	1/4W	A
R712	1-249-436-11	CARBON	39K	5%	1/4W	A
R713	1-249-423-11	CARBON	3.3K	5%	1/4W	A
R714	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R715	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R716	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R717	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R718	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R721	1-249-433-11	CARBON	22K	5%	1/4W	A
R722	1-249-436-11	CARBON	39K	5%	1/4W	A
R723	1-249-423-11	CARBON	3.3K	5%	1/4W	A
R724	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R725	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R726	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R727	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R728	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R731	1-249-433-11	CARBON	22K	5%	1/4W	A
R732	1-249-436-11	CARBON	39K	5%	1/4W	A
R733	1-249-423-11	CARBON	3.3K	5%	1/4W	A
R734	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R735	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R736	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R737	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R738	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R741	1-249-433-11	CARBON	22K	5%	1/4W	A
R742	1-249-436-11	CARBON	39K	5%	1/4W	A
R743	1-249-423-11	CARBON	3.3K	5%	1/4W	A
R744	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R745	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R746	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R747	1-249-419-11	CARBON	1.5K	5%	1/4W	A
R748	1-249-419-11	CARBON	1.5K	5%	1/4W	A

Ref.No.	Part No.	Description	価格			
Short LED Board						
611	*1-619-208-11	PC BOARD, LED				A
D902	8-719-311-21	DIODE SEL1121R				A
Power LED Board						
621	*1-618-816-11	PC BOARD, LED				A
D901	8-719-313-21	DIODE SEL1321G				B
Photo Coupler Board						
631	*1-616-207-11	PC BOARD, PHOTO COUPLER				A
PH901	8-719-751-41	DIODE NJL5141E-A				E
PS-5 Board						
701	*A-2573-061-A	MOUNTED PCB, PS-5				
C1	1-130-710-00	FILM	0.1MF	20%	250V	D
C2	1-161-742-00	CERAMIC	0.0022MF	20%	400V	B
C3	1-161-742-00	CERAMIC	0.0022MF	20%	400V	B
C4	1-161-742-00	CERAMIC	0.0022MF	20%	400V	B
C5	1-161-744-00	CERAMIC	0.01MF		400V	C
O6	1-161-744-00	CERAMIC	0.01MF		400V	C
C7	1-125-318-00	ELECT (BLOCK)	220MF	20%	400V	J
O8	1-127-508-00	ELECT (SOLED)	2.2MF	20%	25V	B
O9	1-136-153-00	MYLAR	0.01MF	10%	50V	A
C10	1-124-478-11	ELECT	100MF	20%	25V	A
C11	1-136-169-00	MYLAR	0.22MF	5%	50V	A
C12	1-106-351-00	MYLAR	0.0022MF	10%	100V	A
C13	1-106-351-00	MYLAR	0.0022MF	10%	100V	A
C14	1-106-351-00	MYLAR	0.0022MF	10%	100V	A
C15	1-106-351-00	MYLAR	0.0022MF	10%	100V	A
C16	1-242-602-00	ELECT	2200MF	20%	35V	F
C17	1-242-602-00	ELECT	2200MF	20%	35V	F
C18	1-124-597-11	ELECT	2200MF	20%	16V	D
C19	1-124-597-11	ELECT	2200MF	20%	16V	D
C20	1-127-513-00	ELECT (SOLID)	15MF	20%	25V	C

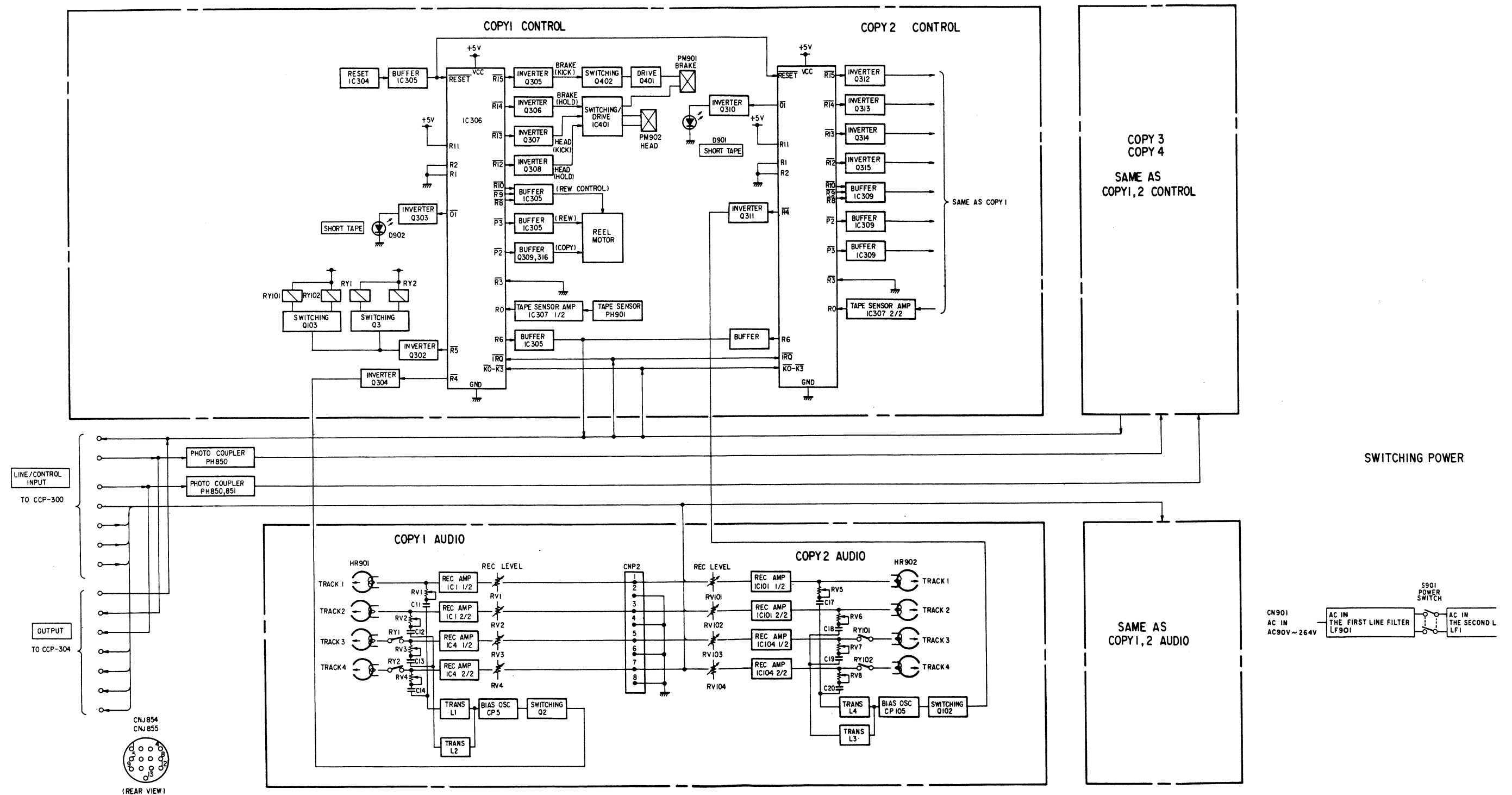
Ref.No.	Part No.	Description	価格	Ref.No.	Part No.	Description	価格
C21	1-127-513-00	ELECT (SOLID) 15MF 20% 25V	C	R6	1-249-438-11	CARBON 56K 5% 1/4W	A
C23	1-124-597-11	ELECT 2200MF 20% 16V	D	R7	1-249-437-11	CARBON 47K 5% 1/4W	A
C24	1-124-597-11	ELECT 2200MF 20% 16V	D	R8	Δ1-215-924-00	METAL OXIDE 15K 5% 3W	F A
C26	1-136-169-00	MYLAR 0.22MF 5% 50V	A	R9	Δ1-212-853-00	FUSIBLE 6.8 5% 1/4W	F A
C27	1-127-514-00	ELECT (SOLID) 33MF 20% 16V	F	R10	Δ1-215-924-00	METAL OXIDE 15K 5% 3W	F A
C28	1-127-514-00	ELECT (SOLID) 33MF 20% 16V	F	R11	Δ1-212-962-00	FUSIBLE 15 5% 1/2W	F A
C29	1-127-514-00	ELECT (SOLID) 33MF 20% 16V	F	R12	Δ1-212-873-11	FUSIBLE 47 5% 1/4W	F A
C30	1-130-489-00	MYLAR 0.033MF 5% 50V	A	R13	Δ1-212-873-11	FUSIBLE 47 5% 1/4W	F A
C31	1-102-116-00	CERAMIC 680PF 10% 50V	A	R14	Δ1-212-962-00	FUSIBLE 15 5% 1/2W	F A
C32	1-106-359-00	MYLAR 0.0047MF 10% 200V	B	R15	Δ1-215-866-11	METAL OXIDE 330 5% 1W	F A
C33	1-106-359-00	MYLAR 0.0047MF 10% 200V	B	R16	Δ1-215-866-11	METAL OXIDE 330 5% 1W	F A
C34	1-106-359-00	MYLAR 0.0047MF 10% 200V	B	R17	1-249-417-11	CARBON 1K 5% 1/4W	A
C35	1-102-116-61	CERAMIC 680PF 10% 50V	A	R18	1-249-417-11	CARBON 1K 5% 1/4W	A
CN1	*Δ1-561-978-00	CONNECTOR, SOCKET 3P	D	R19	1-249-429-11	CARBON 10K 5% 1/4W	A
CN2	*1-561-977-00	CONNECTOR, SOCKET 2P	D	R20	1-249-421-11	CARBON 2.2K 5% 1/4W	A
CN3	*1-508-846-00	PIN, CONNECTOR 8P	D	R21	1-249-429-11	CARBON 10K 5% 1/4W	A
CN4	*1-508-846-00	PIN, CONNECTOR 8P	D	R22	1-249-421-11	CARBON 2.2K 5% 1/4W	A
D1	8-719-300-63	DIODE LB-156	E	R23	1-247-895-00	CARBON 470K 5% 1/4W	A
D2	8-719-815-55	DIODE 1S1555	A	R24	Δ1-212-849-00	FUSIBLE 4.7 5% 1/4W	F A
D3	8-719-815-55	DIODE 1S1555	A	RV1	1-228-519-00	RES, ADJ, METAL GRAZE 2.2K	D
D4	8-719-815-55	DIODE 1S1555	A	T1	Δ1-449-119-11	TRANSFORMER, CONVERTER	M
D5	8-719-302-21	DIODE EU2Z	B	T2	1-424-039-11	TRANSFORMER, CURRENT	D
D6	8-719-302-21	DIODE EU2Z	B	PS-6 Board			
D7	8-719-500-41	DIODE DBLCA20	E	702	*1-624-918-11	PC BOARD, PS-6	A
D8	8-719-500-41	DIODE DBLCA20	E	C51	1-130-473-00	MYLAR 0.0015MF 5% 50V	A
D10	8-719-500-42	DIODE DBLCA20R	E	C52	1-127-508-00	ELECT (SOLID) 2.2MF 20% 25V	B
D11	8-719-931-22	DIODE EQB01-22	D	C53	1-130-475-00	MYLAR 0.0022MF 5% 50V	A
D12	8-719-114-53	DIODE RD8.2JSB2	A	C54	1-127-510-00	ELECT (SOLID) 4.7MF 20% 25V	B
D13	8-719-100-80	DIODE RD20EB2	A	IC51	8-759-140-84	IC UPIC1094C	C
D14	8-719-931-18	DIODE EQB01-18	D	R51	1-249-435-11	CARBON 33K 5% 1/4W	A
D15	8-719-931-18	DIODE EQB01-18	D	R52	1-249-433-11	CARBON 22K 5% 1/4W	A
D16	8-719-931-06	DIODE EQB01-06	D	R53	1-249-417-11	CARBON 1K 5% 1/4W	A
IC1	8-759-140-85	IC UPIC1093J	D	R54	1-249-437-11	CARBON 47K 5% 1/4W	A
IC2	8-759-924-12	IC LM7805CT	D	R55	1-249-434-11	CARBON 27K 5% 1/4W	A
L2	1-407-717-00	MICRO INDUCTOR 1MH	A	R56	Δ1-212-865-00	FUSIBLE 22 5% 1/4W	F A
L3	1-407-488-00	MICRO INDUCTOR 470UH	B	RV51	1-226-772-11	RES, ADJ, METAL GLAZE 4.7K	C
L4	1-459-106-00	COIL, DUST CORE	E	W51	*1-564-163-00	PIN, CONNECTOR 6P	C
L5	1-459-110-00	COIL, DUST CORE	D	PS-7 Board			
L6	1-459-110-00	COIL, DUST CORE	D	C901	Δ1-130-710-00	FILM 0.1MF 20% 250V	I
L7	1-459-106-00	COIL, DUST CORE	E	LP901	Δ1-421-225-00	COIL, LINE FILTER	F
LF1	1-421-960-11	TRANSFORMER, LINE FILTER	E	Stator Board			
PH1	8-719-800-82	DIODE TLP581	J	H701	8-719-800-17	DIODE THS102A	C
PS1	1-532-984-11	LINK, IC	B	H702	8-719-800-17	DIODE THS102A	C
PS2	1-532-984-11	LINK, IC	B				
PS3	1-532-984-11	LINK, IC	B				
PS4	1-532-984-11	LINK, IC	B				
PS5	1-532-984-11	LINK, IC	B				
Q1	8-729-168-82	TRANSISTOR 2SC2688	C				
Q2	8-729-245-82	TRANSISTOR 2SC2458-Y* (28)	A				
Q3	8-729-000-16	TRANSISTOR MTP6N60	L				
R1	Δ1-217-294-00	WIREWOUND 4.7 10% 5W	F B				
R2	Δ1-247-711-11	CARBON 680 5% 1/4W	A				
R3	1-247-885-00	CARBON 180K 5% 1/4W	A				
R4	1-247-885-00	CARBON 180K 5% 1/4W	A				
R5	1-249-433-11	CARBON 22K 5% 1/4W	A				

CCP-314 CCP-314

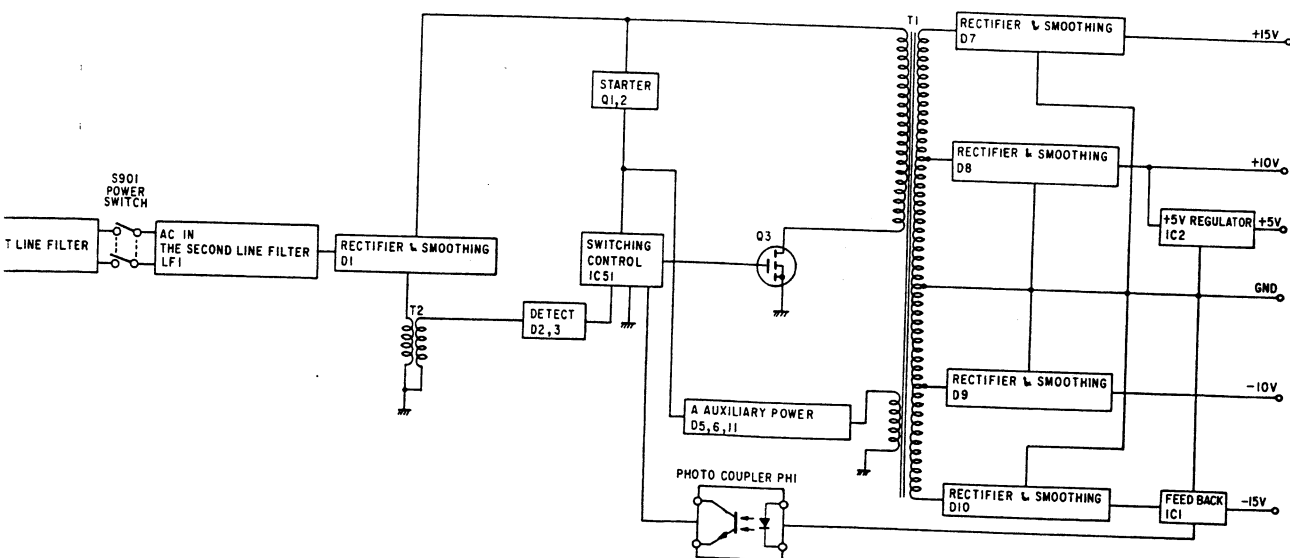
SECTION 8

CCP-314 DIAGRAMS AND PARTS LIST

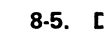
8-1. BLOCK DIAGRAM



SWITCHING POWER



CCP-314	CCP-314
----------------	----------------

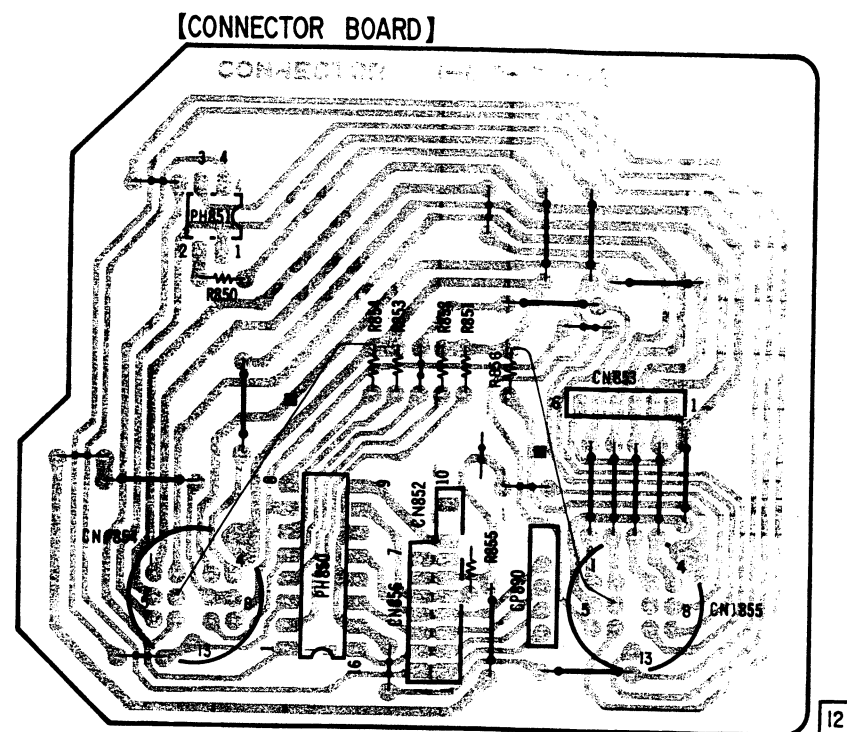


Note

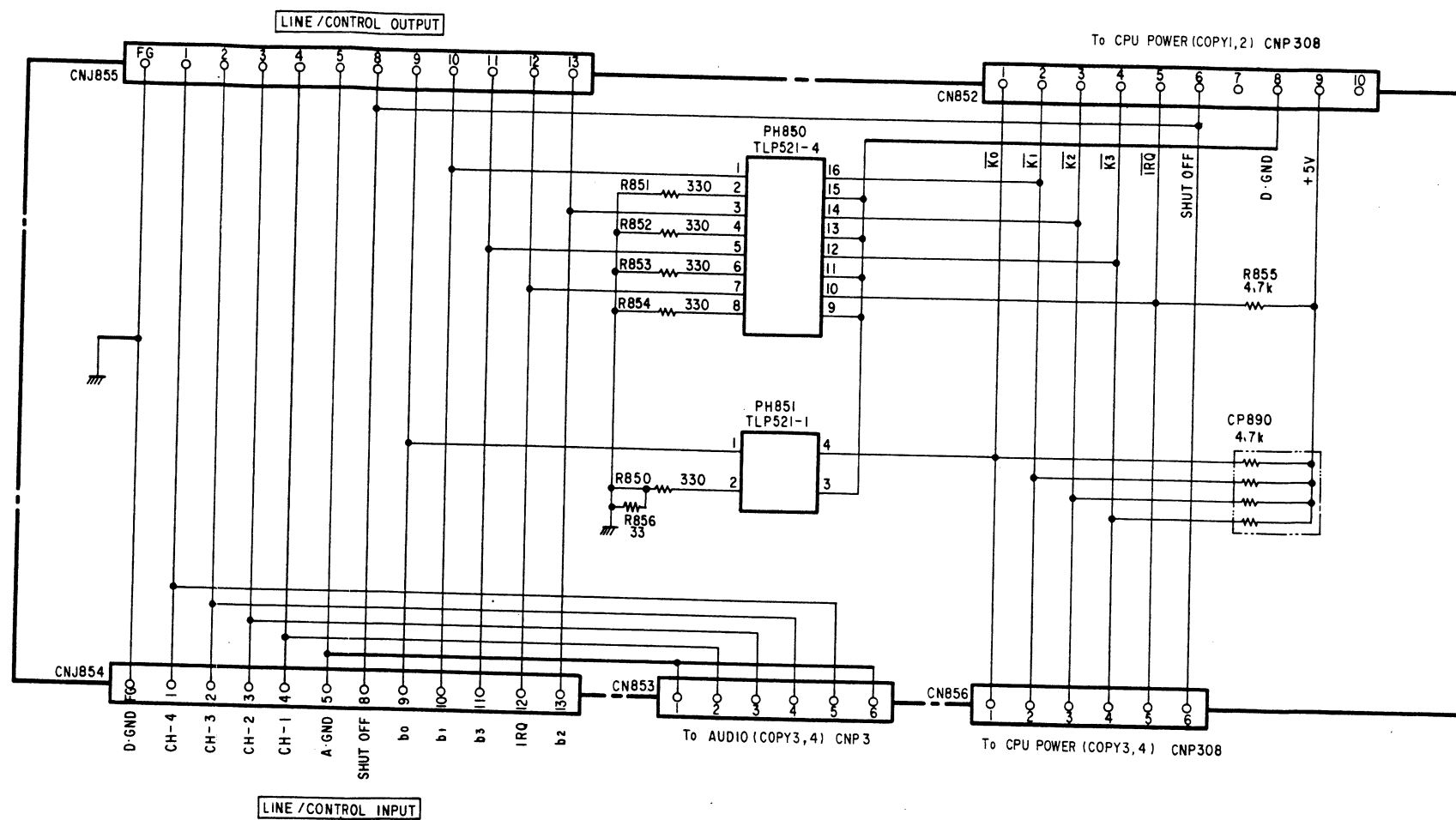
- 
- 

CCP-314 CCP-314

8-5. DIGITAL CONNECTOR BOARD — Soldering Side —



12



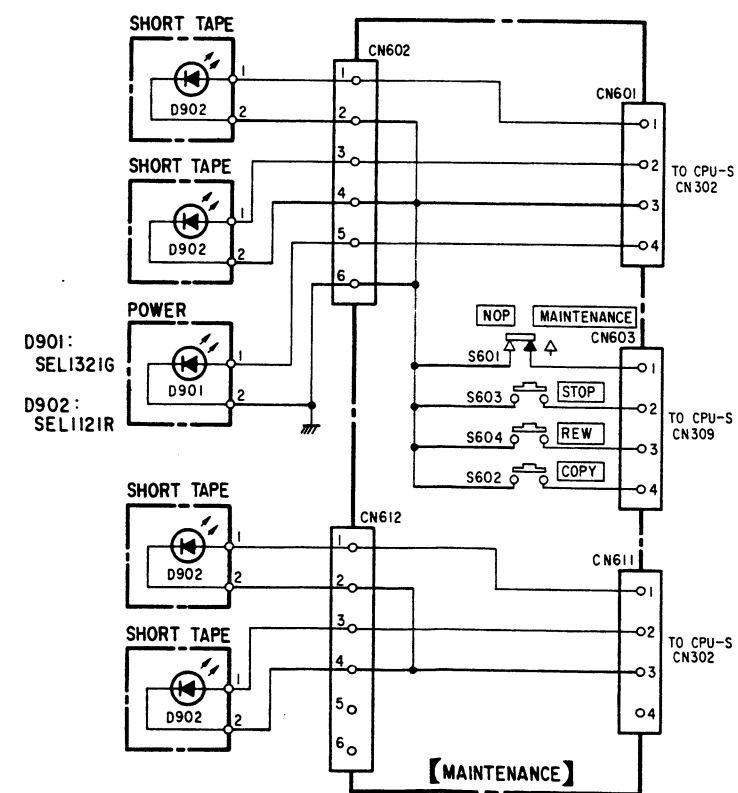
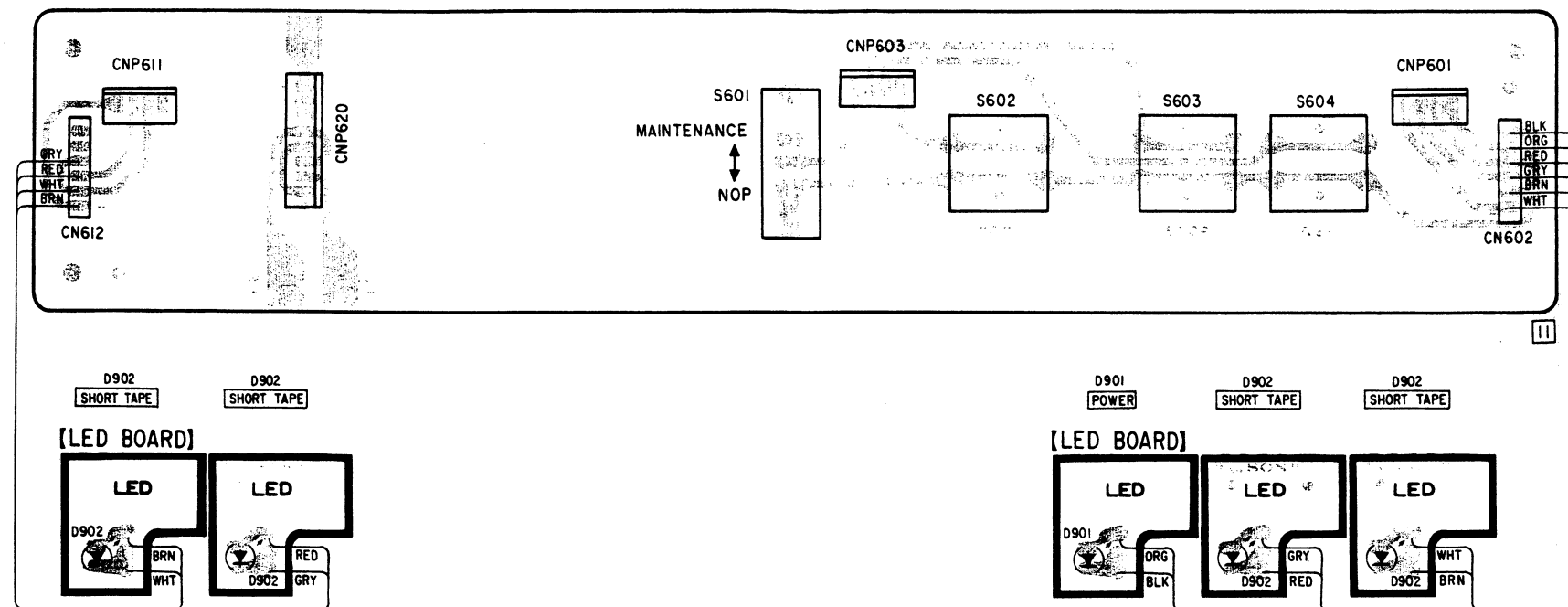
Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{10}\text{W}$ or less unless otherwise specified.
- : panel designation.
- : B+ bus.

Note:

- : B+ pattern.
- : part mounted on the soldering side.

8-6. MAINTENANCE BOARD — Soldering Side —



8-10. PARTS LIST

1 2 3 4 5 6 7

(1)

Ref.No.	Part No.	Description
11	*K-3162-308-2	PLATE (REAR) ASSY, TOP
12	*K-3162-330-1	PLATE (FRONT) ASSY, TOP
14	*3-162-383-01	PLATE (LEFT), SIDE
15	*3-162-382-01	PLATE (RIGHT), SIDE
19	*A-2563-146-A	REAR PANEL ASSY
20	*3-162-380-61	PLATE, FRONT

価格
L
R
G
G
G

Ref.No.	Part No.	Description
22	X-4809-908-9	FOOT, RUBBER
23	*3-162-324-01	NUT, PLATE
24	*3-162-380-81	PLATE, FRONT
25	*3-642-310-00	HOLDER, CIRCUIT BOARD

価格
A
A
H
A

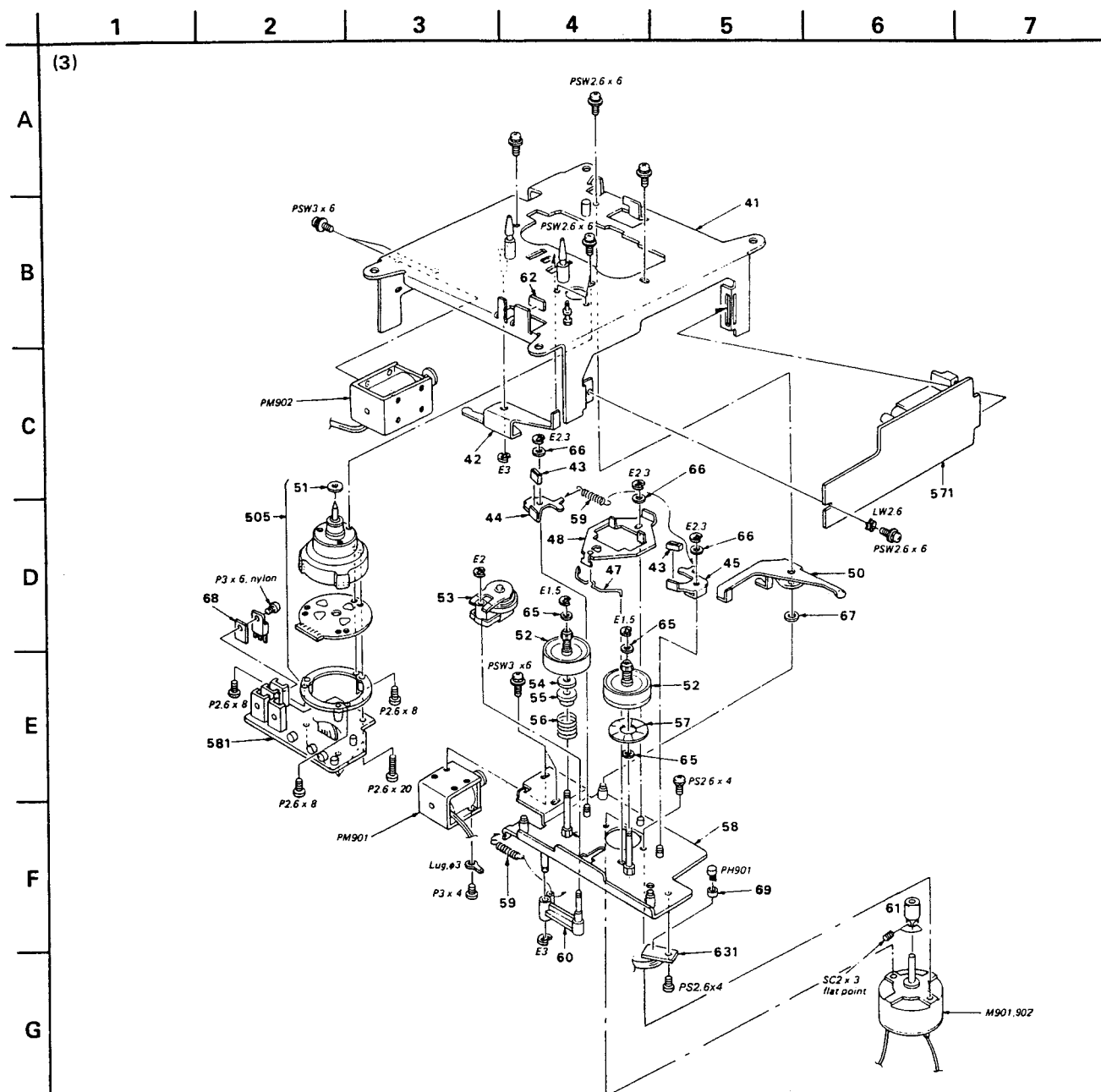
—99—

The diagram illustrates the assembly of a support structure (B). It features a coordinate grid at the top (1-7) and left (A-J). The main components and their assembly points are as follows:

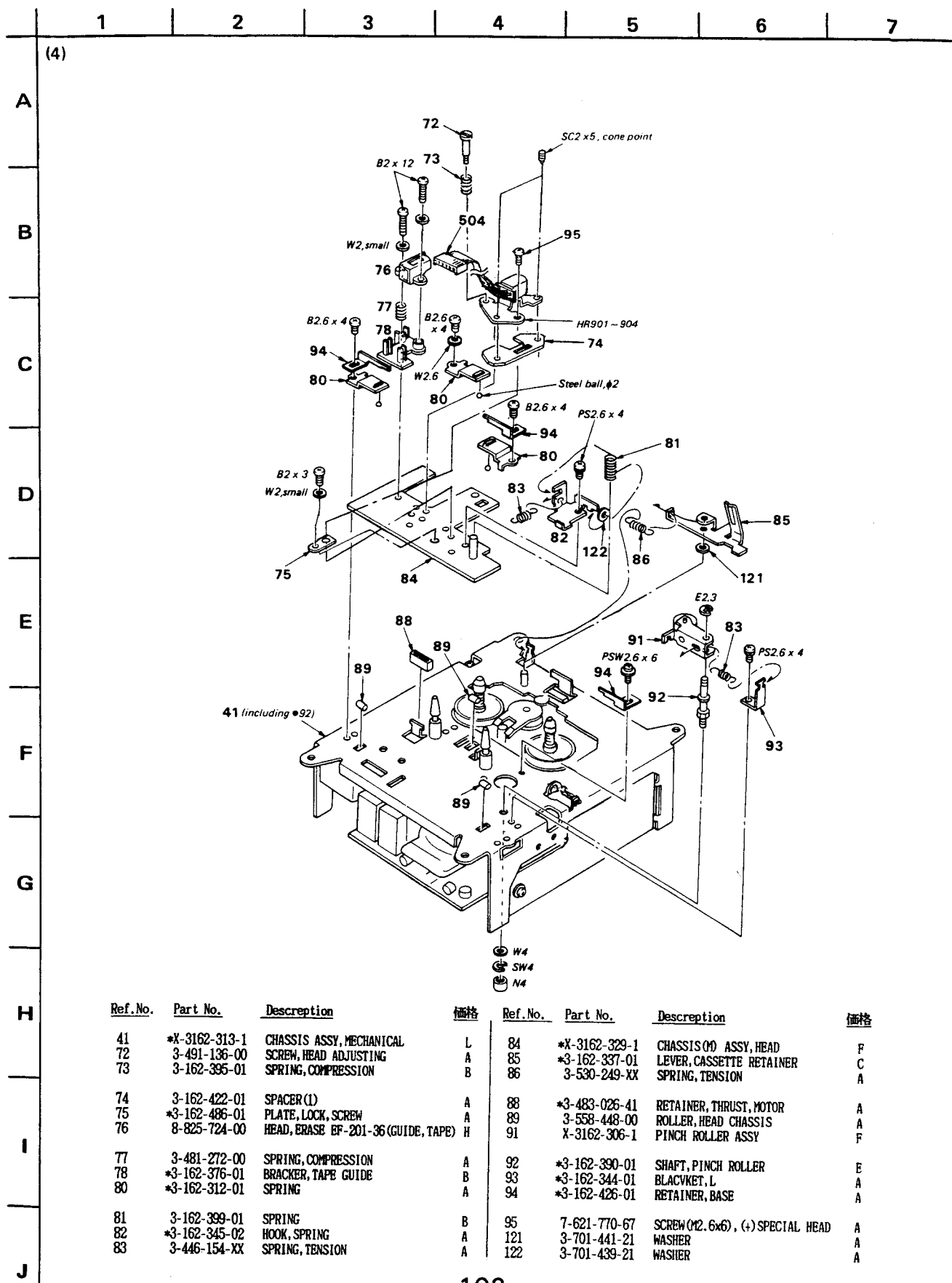
- Top Rail Assembly:** Consists of two parallel rails connected by cross-braces. It is secured with **PSW 2.6 x 6** screws at the top and bottom.
- Side Rails:** Two vertical rails that support the top rail assembly. They are secured with **PSW 3 x 6** screws at the base.
- Base Plate (651):** A rectangular plate that serves as the foundation for the side rails. It is secured with **PSW 3 x 6** screws.
- Internal Bracing (502, 504, 641):** A network of smaller components that reinforce the structure. **502** and **504** are small brackets or clips, while **641** is a larger support bracket. They are secured with **PSW 3 x 6** screws.

Ref.No.	Part No.	Descreption	価格
30	*4-906-052-01	SUPPORT (B)	B

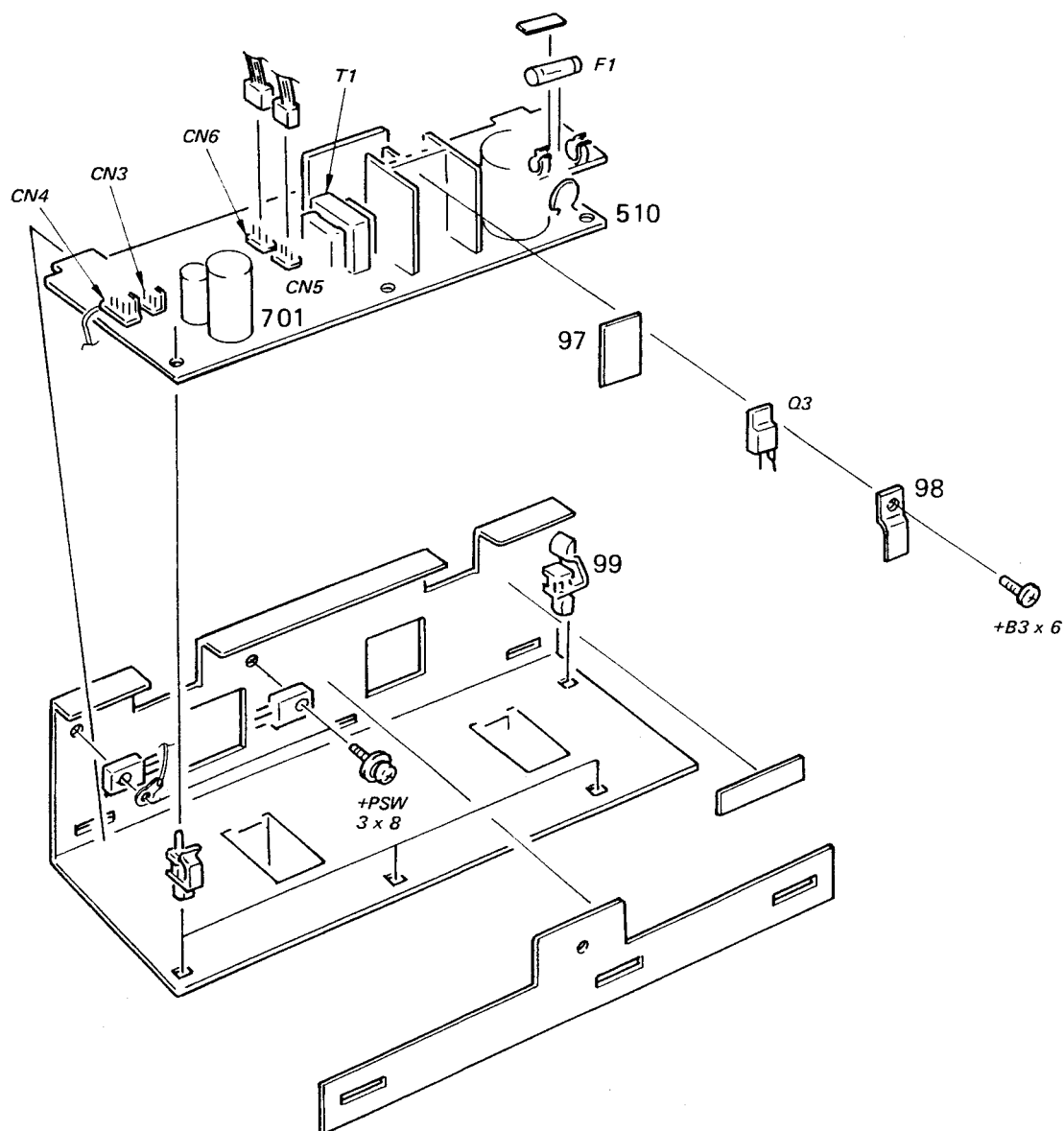
—100—



Ref. No.	Part No.	Description	價格	Ref. No.	Part No.	Description	價格
41	*X-3162-313-1	CHASSIS ASSY, MECHANICAL	L	56	3-152-738-00	SPRING, COMPRESSION	A
42	*3-162-313-01	LEVER, FWD	A	57	3-155-352-00	REFLECTOR	A
43	3-162-366-01	RUBBER, BRAKE	F	58	*X-3162-303-3	CHASSIS ASSY, REEL	K
44	*3-162-351-01	LEVER (LEFT), BRAKE	B	59	3-489-123-00	SPRING, TENSION	A
45	*3-162-354-01	LEVER (RIGHT), BRAKE	B	60	*X-3162-304-1	ARM (1) ASSY, IDLER	D
47	3-162-364-02	SPRING	B	61	3-162-357-01	PULLEY, MOTOR	G
48	*X-3162-307-3	PLATE ASSY, RELEASE, BRAKE	C	62	9-911-848-XX	CUSHION (S)	H
50	*3-162-319-01	LEVER, BRAKE	B	65	3-701-437-21	WASHER	A
51	3-162-415-01	WASHER, THRUST	A	66	3-701-439-21	WASHER	A
52	X-3162-317-1	TABLE ASSY, REEL	G	67	3-701-444-21	WASHER, 6	A
53	A-2191-025-A	PULLEY COMPETE ASSY, IDLER	N	68	*3-577-157-20	INSULATOR, TO-126	A
54	3-162-310-01	FELT, CLUTCH	A	69	*3-162-367-01	SPACER	B
55	3-162-356-01	RING, B.T	C				



(5)



Ref.No.	Part No.	Description	価格
97	2-291-518-00	INSULATOR (E)	A
98	*2-434-297-01	BRACKET	A
99	*4-321-929-00	ORDER, PC BOARD	A

CCP-310/314

Ref.No.	Part No.	Description	個数	価格	Ref.No.	Part No.	Description	個数	価格
<u>Accessories</u>					<u>Maintenance Board</u>				
	X-3701-105-0	HEAD CLEANING TIP	1	A	R855	1-249-425-11	CARBON	4.7K 5%	1/4W A
	△1-534-754-00	POWER CORD (J ONLY)	1	G	R856	1-249-399-11	CARBON	33 5%	1/4W A
	△1-551-812-11	POWER CORD (US ONLY)	1						
	△1-556-760-11	POWER CORD (3 CORE) (AEP, UK ONLY)	1						
	1-558-196-11	CORD, CONNECTION 13P	1	N					
	*3-162-452-01	COVER, DUST	1	H					
	3-769-745-01	MANUAL, INSTRUCTION (J ONLY)	1	E					
	3-769-745-11	MANUAL, INSTRUCTION (US, UK, AEP ONLY)	1						
	3-769-745-41	MANUAL, INSTRUCTION (AEP ONLY)	1						
		CARD, WARRANTY (S-S4) (B05) (J ONLY)	1						
		LEAFLET (J ONLY)	1						
<u>Electrical Parts</u>									
502	*1-558-305-11	CABLE, CONNECTION		J					
504	*1-558-071-11	LEAD (WITH CONNECTOR) 8P		E					
505	1-541-316-11	MOTOR, CAPSTAN		S					
510	*1-533-189-11	HOLDER, FUSE		A					
CN901	△1-560-222-11	INLET 3P		F					
F1	△1-532-822-11	FUSE (J, US ONLY)		C					
	△1-532-078-11	TIME LAG FUSE (AEP, EK ONLY)							
HR901	8-825-649-11	HEAD RF165-3604A		VE					
HR902	8-825-649-11	HEAD RF165-3604A		VE					
HR903	8-825-649-11	HEAD RF165-3604A		VE					
HR904	8-825-649-11	HEAD RF165-3604A		VE					
PM901	1-454-405-11	SOLENOID, PLUNGER		J					
PM902	1-454-404-11	SOLENOID, PLUNGER		J					
M901	1-541-163-00	MOTOR		J					
M902	1-541-163-00	MOTOR		J					
S901	△1-570-494-11	SWITCH, SEESAW (AC POWER)		F					
<u>PC BOARD, CONNECTOR</u>									
	*1-617-611-11	PC BOARD, CONNECTOR		C					
CN852	*1-558-066-21	CABLE, CONNECTION (2MM PITCH) 10P		G					
CN853	*1-558-310-11	CABLE, CONNECTION		J					
CN856	*1-558-599-11	CABLE, CONNECTION		F					
CNJ854	1-562-090-00	JACK 13P		F					
CNJ855	1-562-090-00	JACK 13P		F					
PH850	8-719-801-19	DIODE TLP521-4		J					
PH851	8-719-800-42	TLP521-1-A		D					
R850	1-249-411-11	CARBON	330 5%	1/4W A					
R851	1-249-411-11	CARBON	330 5%	1/4W A					
R852	1-249-411-11	CARBON	330 5%	1/4W A					
R853	1-249-411-11	CARBON	330 5%	1/4W A					
R854	1-249-411-11	CARBON	330 5%	1/4W A					

Audio Board (S) (Same as CCP-310)

Bias 1 Board (Same as CCP-310)

Bias 2 Board (Same as CCP-310)

CPU Board (S) (Same as CCP-310)

Mech Drive Board (Same as CCP-310)

Motor Drive Board (Same as CCP-310)

Stator Board (Same as CCP-310)

Short LED Board (Same as CCP-310)

Power LED Board (Same as CCP-310)

Photo Coupler Board (Same as CCP-310)

PS-5 Board (Same as CCP-310)

PS-6 Board (Same as CCP-310)

PS-7 Board (Same as CCP-310)

Sony Corporation

© 1988

9-955-067-01

88

English

88E0515-1

Printed in Japan